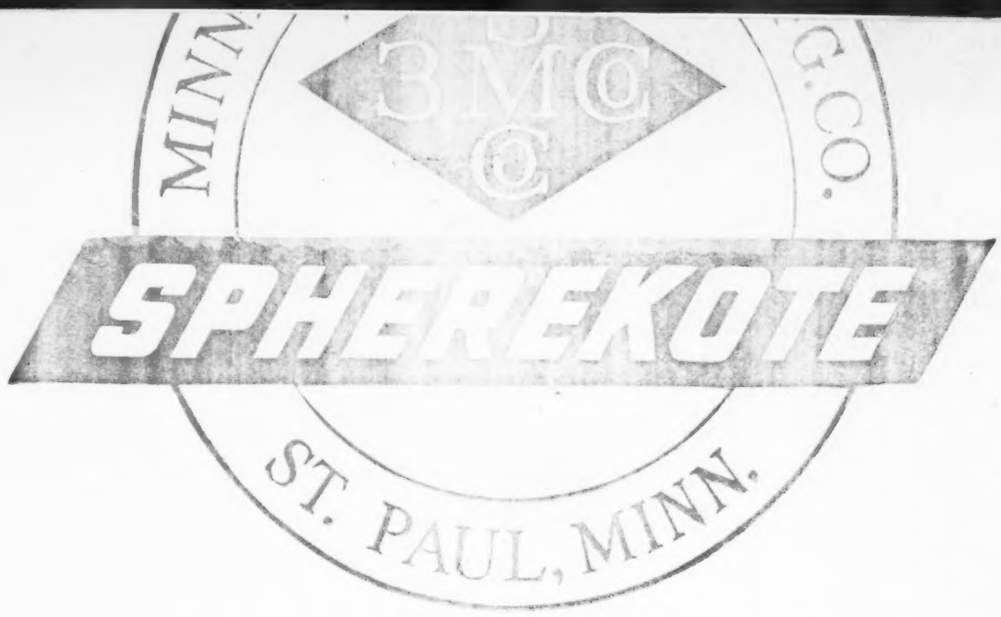
The International Craftsmen's Convention

Montreal, Quebec, Canada, September, 1946

August 1946, PRINTING EQUIPMENT *Engineer*



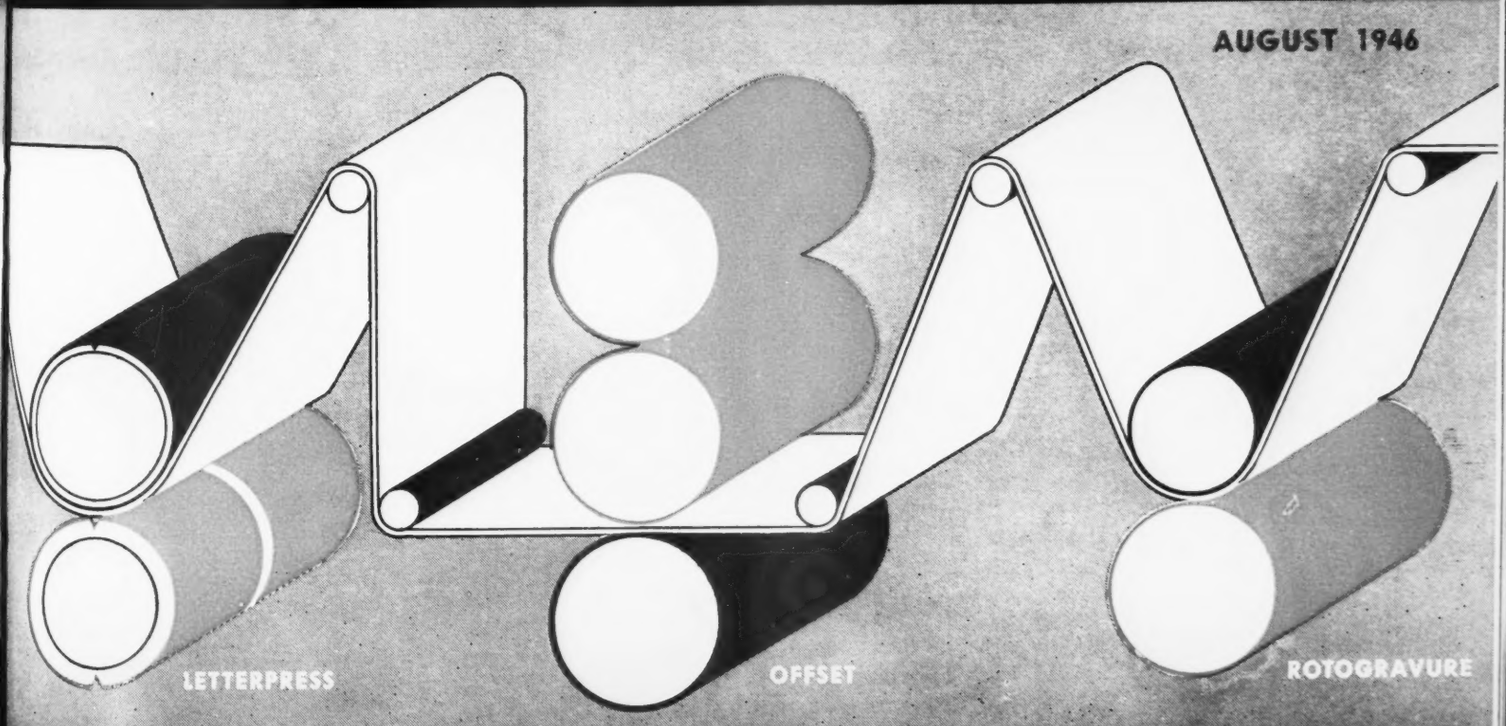
PATENT APPLIED FOR

GLASS SPHERE COATED TYMPAN COVER

17C★LP4

Printing Equipment Engineer

AUGUST 1946



WE'VE GONE BUG HUNTING

to bring you a Better Cutter

How do we know this is the fastest, safest, most dependable small cutter ever offered the graphic arts industry? First, we engineered it to be just that. Second, we went "Bug Hunting".

We installed eleven of these machines in shops throughout the country. We said to operators of these machines, "Give 'em the works. Don't baby them. Then tell us what, if anything, we should do to make them better."

The results of this test—the comments of the operators—the performance records of these machines under actual working conditions over a period of more than 60 months—have given us the proof we were looking for.

Today, assured that this machine is the finest small cutter money can buy, we are proud to affix the Seybold name plate and to announce to the graphic arts industry, the Seybold Model CBA, 36″ Auto Clamp Cutter—further evidence of what is accomplished by engineering the human element at *Seybold*.

WHY THIS 36″ PAPER CUTTER WILL DO A BETTER JOB FOR YOU

1 ***Effortless, Selective, Clamp Pressure Control.*** **Quick selection of one of three clamping pressures.**

Maintains constant pressure until knife passes clamp on upstroke.

Clamp mechanism operates in a vertical plane, eliminating sidewise shifting of clamp.

2 ***Simple and Accurate Adjustment of Knife to Cutting Stick.*** **Quickly accomplished by means of easily accessible adjusting eccentrics on each end of knife bar.**

3 ***Straight-line Cutting Action.*** **Knife Pull Bar, in same plane as knife, assure accurate cutting.**

4 ***Better Light Where It Is Needed.*** **Table, back gauge and magnified measuring band are well illuminated. Less operator fatigue and reduced work spoilage.**

5 ***Scientific Cutting Action.*** **Rugged knife bar, a five-inch clamp opening with greater clamp lead, twin shear boxes, combine with new, scientifically correct, 51 degree shear action to assure straight clean cuts—all the way.**

6 ***Fully-automatic, Approved Safety Devices.*** **Mechanical, two-hand starting device; completely enclosed working parts; non-repeat mechanism with exclusive Seybold safety washers; automatic drum-type brake, easily reached from front of machine.**

7 ***Extremely Low Maintenance Costs.*** **All lubrication points are easily accessible; clutch and drive operate in a bath of oil and are fully enclosed. Paper trimmings and abrasive dust cannot enter.**

ANOTHER EXAMPLE OF ENGINEERING THE HUMAN ELEMENT AT

HARRIS-SEYBOLD

Harris Presses • Seybold Cutters • Other Graphic Arts Equipment

HARRIS-SEYBOLD COMPANY • GENERAL OFFICES, CLEVELAND 5, OHIO

Seybold

LITTLE GIANT

...

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ences...

See inside

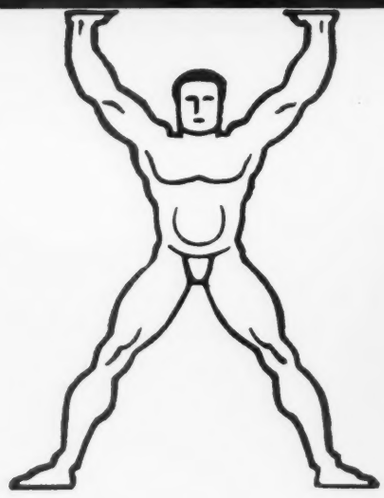
Big Features

LITTLE GIANT

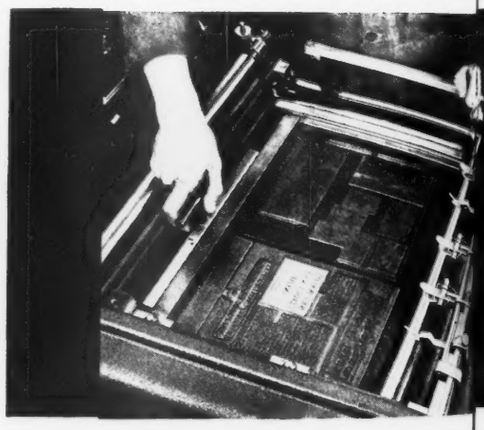
ATF

Easier Makeready

Makeready time is reduced to a minimum—thanks to accessibility of the cylinder. Special cylinder blanket permits faster starting on every job.

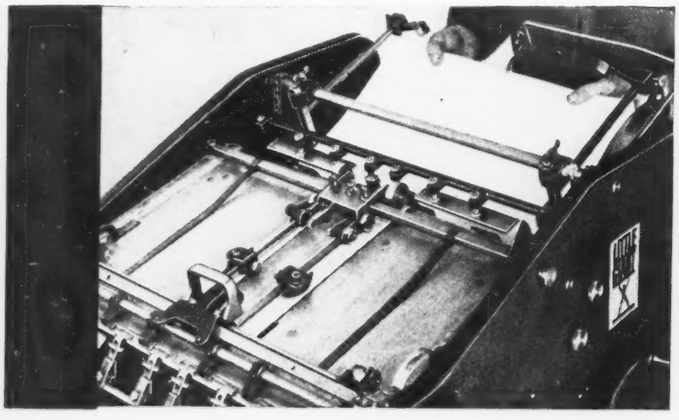


This side of sheet printed single roll . . . thanks to the ample cylinder press distribution of the Little Giant



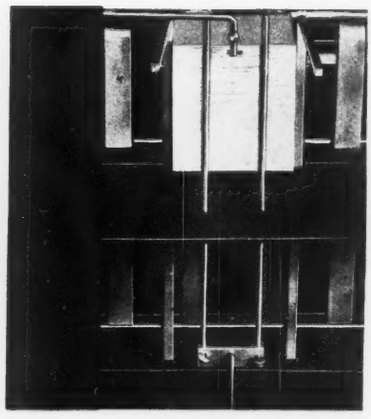
Faster Lock-up

Entire form is exposed on the bed of the *Little Gia* gear is i suring acc an be chan



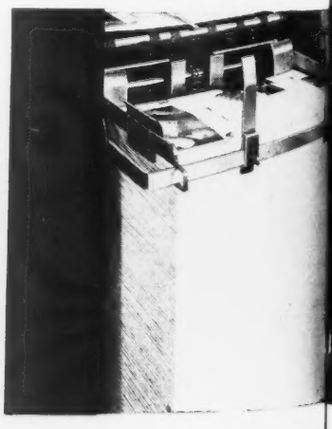
Quick-Set Feeder

The Little Giant feeder will handle any stock from postcard size (3¼x5½) to 12x18 inches, onionskin to 4-ply card. A single, finger-tip adjustment sets the pile; front guides are permanently set; side guide is adjustable.



Envelopes:

With the simple attachment illustrated a full pile of envelopes can be fed to the press.



Extension Jogger Deliver

Large pile delivery lowers auto sheets are jogged automatically as on the table; two features usual only on large cylinder presses.

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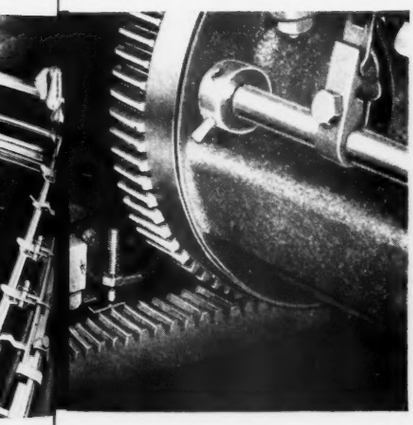
LITTLE GIANT

ATF

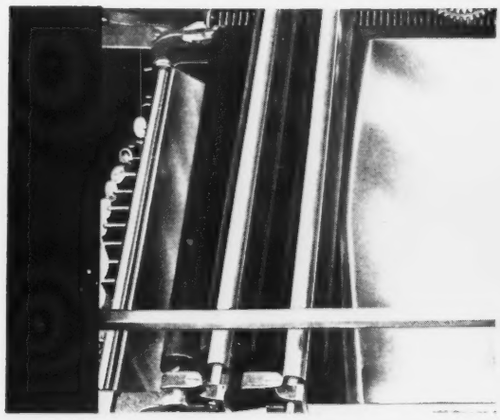
Specifications

Largest Sheet	12x18 inches
Smallest Sheet	3¼x5½ inches
Printing Area	11¾x17½ inches
Type Bed Size	15¼x18½ inches
Heaviest Stock	.018 (4-ply)
Lightest Stock	Onionskin
Feeder Capacity	17½ inches
Delivery Capacity	24 inches
Speed Range	2500, 3500, 4000 i.p.h.
Floor Space	34x82 inches
Motor, D.C. or Polyphase A.C.	1½ h.p.
Motor, One Phase A.C.	2 h.p.
Net Weight	2120 lbs.
Ship. Weight (domestic)	2420 lbs.



rate Register

gear is in constant mesh with driving suring accurate control of register. Side an be changed from left to right instantly.

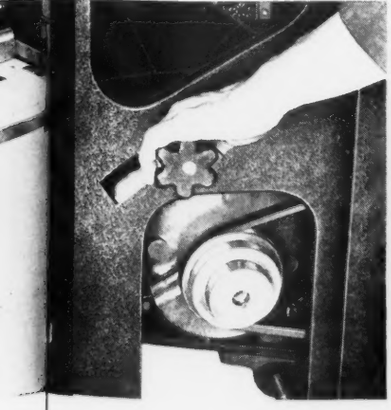


Cylinder Press Ink Distribution

Ample ink distribution. Fountain can be set quickly. Ink flow controlled accurately with 18 fountain adjusting screws.

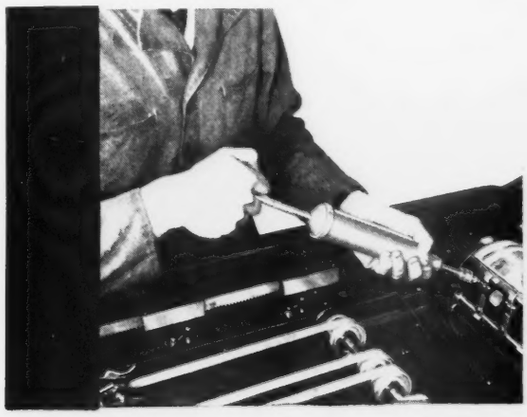
Double Roll:

A turn of the plunger, while press is off or on, provides automatic double roll for heavy solids and halftones.



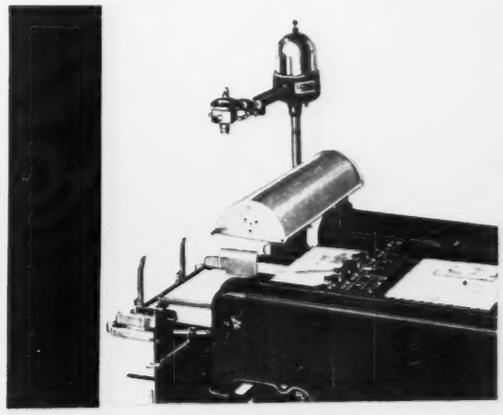
venient Speed Changes

gle, constant speed motor operates the Giant, with starter and overload pro- n. Modern, V-belt drive permits quick ges from one speed to another.



Alemite Lubrication

Positive lubrication of all main bearings insures trouble-free operation. Press tracks are lubricated automatically from oil reservoir.



Gas Burner • Non-Offset Gun

Optional equipment: Overhead gas burner deflects heat onto sheet at end of delivery carriage; ATF *Diafram* Gun installation prevents offsetting on color jobs, large halftones and solids. (Extras.)

Rely on these friendly ATF Branches

Atlanta 2, Ga.	223 Nelson St., S.W.
Baltimore 1, Md.	103 W. Pratt St.
Boston 11, Mass.	210 South St.
Buffalo 3, N. Y.	327 Washington St.
Chicago 6, Ill.	519 W. Monroe St.
Cincinnati 2, Ohio	6th and Sycamore Sts.
Cleveland 14, Ohio	1710 E. 22nd St.
Dallas 1, Texas	604 S. Akard St.
Denver 2, Colo.	1927 Arapahoe St.
Des Moines 9, Iowa	924 Grand Ave.
Detroit 26, Mich.	180 E. Larned St.
Kansas City 6, Mo.	934 Wyandotte St.
Los Angeles 13, Cal.	470 E. Third St.
Milwaukee 2, Wisc.	737 N. Van Buren St.
Minneapolis 1, Minn.	117 Washington Ave., N.
New York 10, N. Y.	104 E. 25th St.
Philadelphia 7, Pa.	13th and Cherry Sts.
Pittsburgh 22, Pa.	405 Penn Ave.
Portland 4, Ore.	416 S.W. Oak St.
San Francisco 3, Cal.	1261 Howard St.
Seattle 4, Wash.	Western and Columbia
St. Louis 3, Mo.	2135 Pine St.
Washington 5, D. C.	1223 H St., N.W.

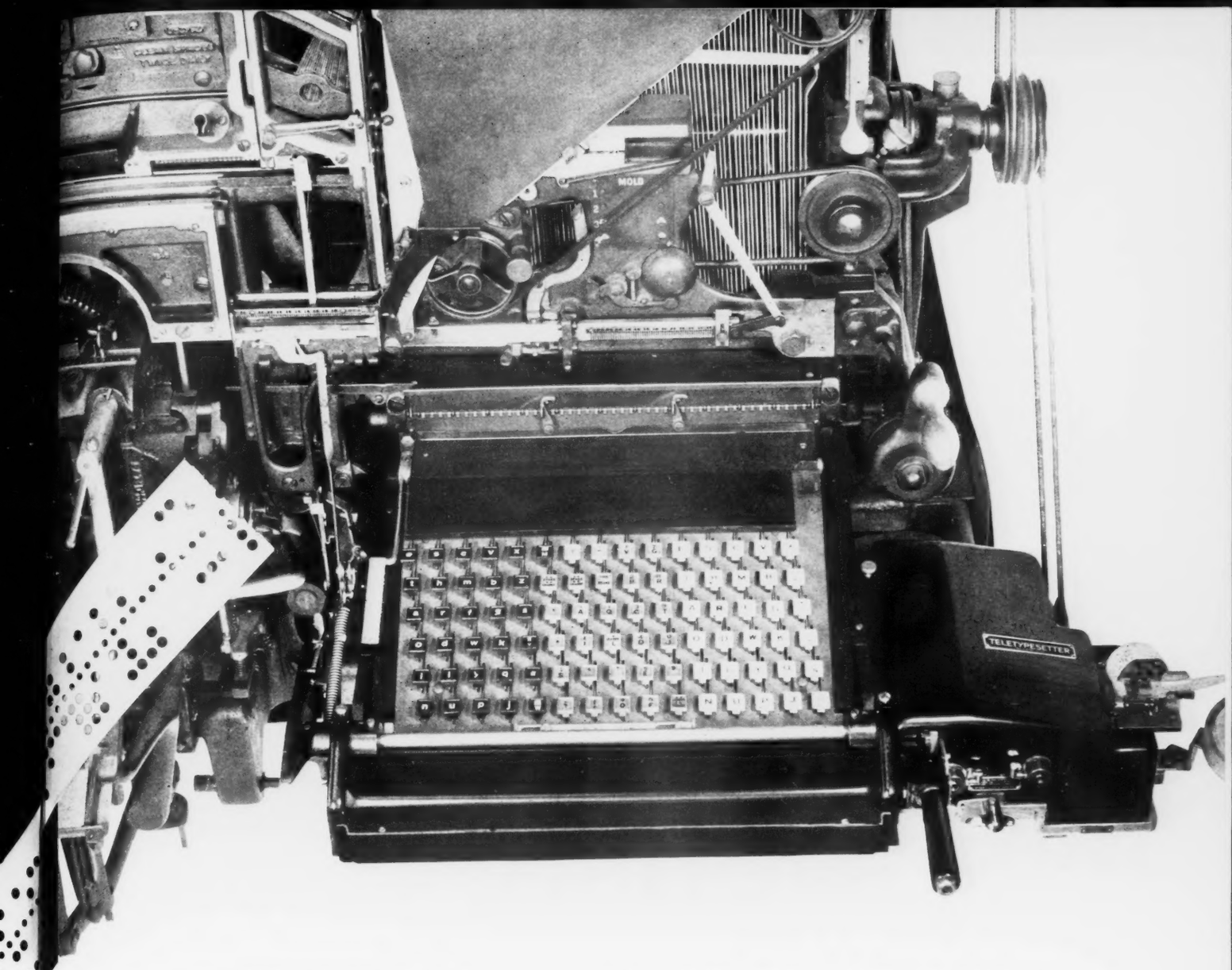
LE5-10M646RC Printed in U.S.A. on the ATF LITTLE GIANT

The music of the Teletypesetter

MORE TYPE *in* LESS TIME

Teletypesetter

really "SINGS" for progressive newspaper composing rooms



The steady click of Teletypesetter at work is music to the ears of the progressive composing room executive . . . its theme song is "More Type in Less Time."

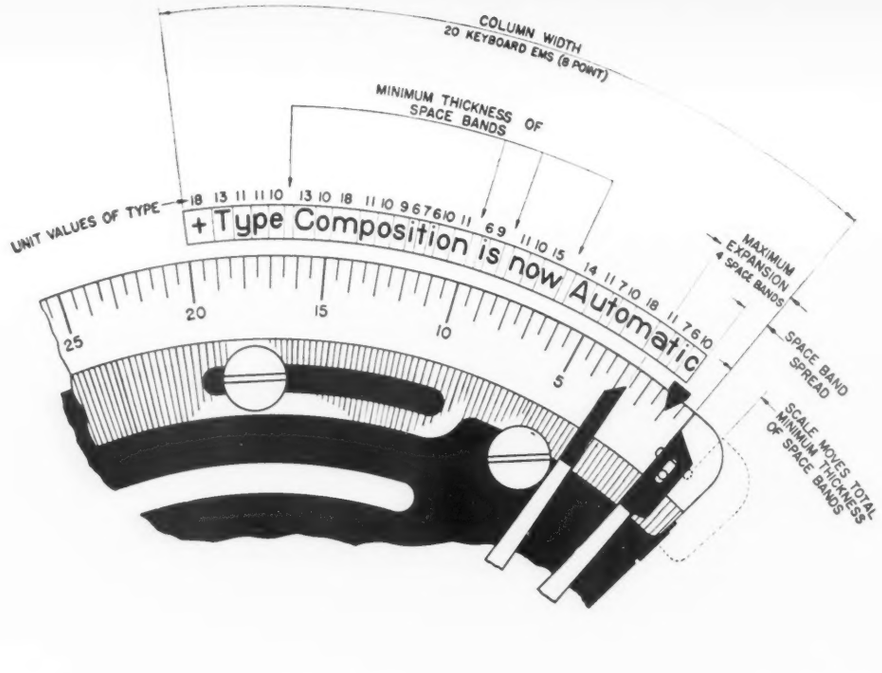
Teletypesetter's reputation has long since been established. That's why, when manufacture was resumed after the war, more than half the orders in our large backlog were from old customers . . . plants which had been using the equipment and knew what it could do.

And most of the new customers—that made up the rest of the backlog—wanted the apparatus because they'd seen it perform in neighboring plants . . . and had checked carefully with users about the results they were achieving.

All operating functions of the typesetting machine are controlled from the keyboard of the Teletypesetter Perforator . . . this includes the duplex rail when either bold face or italics are to appear. The scope of the machine meets all needs for straight news typesetting.

The Teletypesetter Operating Unit attaches to your typesetting machine. Its steady, automatic operation will step up your production . . . simple, mechanical devices provide all safety factors required . . . several automatically operated machines are served by one attendant.

MORE TYPE *in* LESS TIME


COLUMN WIDTH
20 KEYBOARD EMS (8 POINT)
MINIMUM THICKNESS OF SPACE BANDS
UNIT VALUES OF TYPE
18 13 11 11 10 13 10 18 11 10 9 6 7 6 10 11 6 9 11 10 15 14 11 7 10 18 11 7 6 10
+ Type Composition is now Automatic
25 20 15 10 5
MAXIMUM EXPANSION 4 SPACE BANDS
SPACE BAND SPREAD
SCALE MOVES TOTAL MINIMUM THICKNESS OF SPACE BANDS

Typing Teletypesetter tape

The Perforator keyboard is the most efficient and fastest ever designed for large volume news text composition . . . It has a typewriter layout . . . the touch system operator's keystrokes are recorded in the tape . . . a simple justifying scale indicates the line fitting . . . when the line is completed a keystroke records the signal for automatically operating the line-casting machine elevator.

The tape sets the type

Tape previously prepared is fed into the Teletypesetter Operating Unit . . . the code holes in the tape control all of the operations of the composing machine. Installation can be made on current models of Linotypes or Intertypes carrying 90-channel magazines. Unit does not interfere with manual operation of machines.

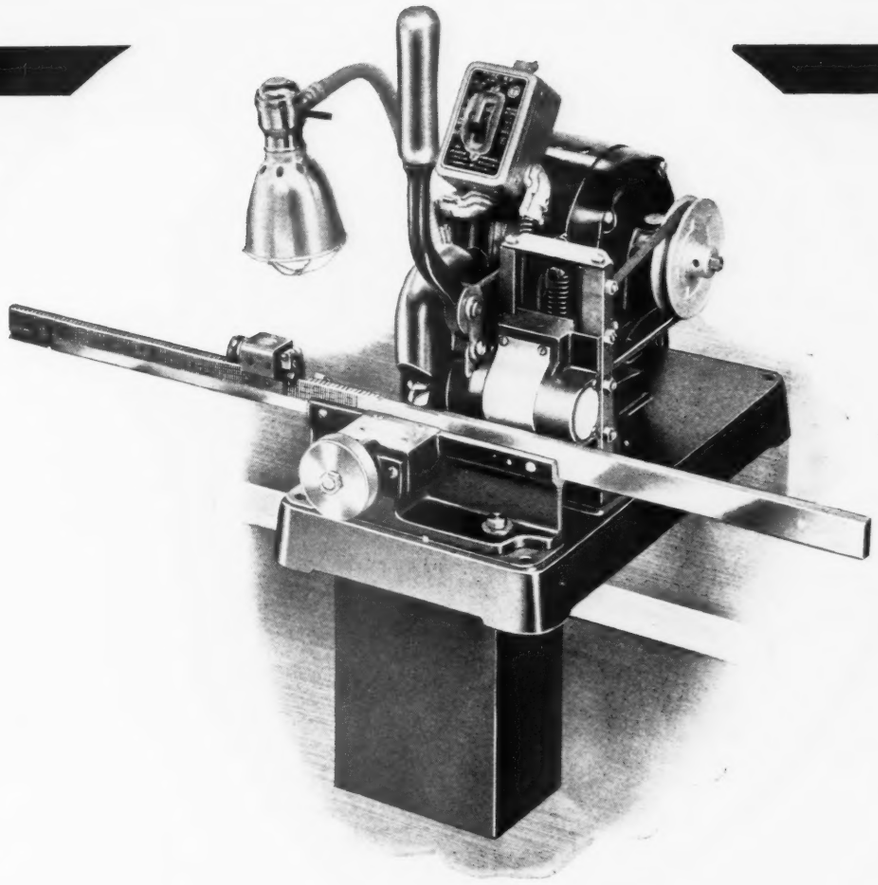
For more detailed information, Write

TELETYPESETTER CORPORATION

1400 Wrightwood Avenue • Chicago 14, Illinois

ECONOMY MODEL
Rouse VERTICAL ROTARY MITERER

AT LOW COST



Cuts MITERS AN HOUR

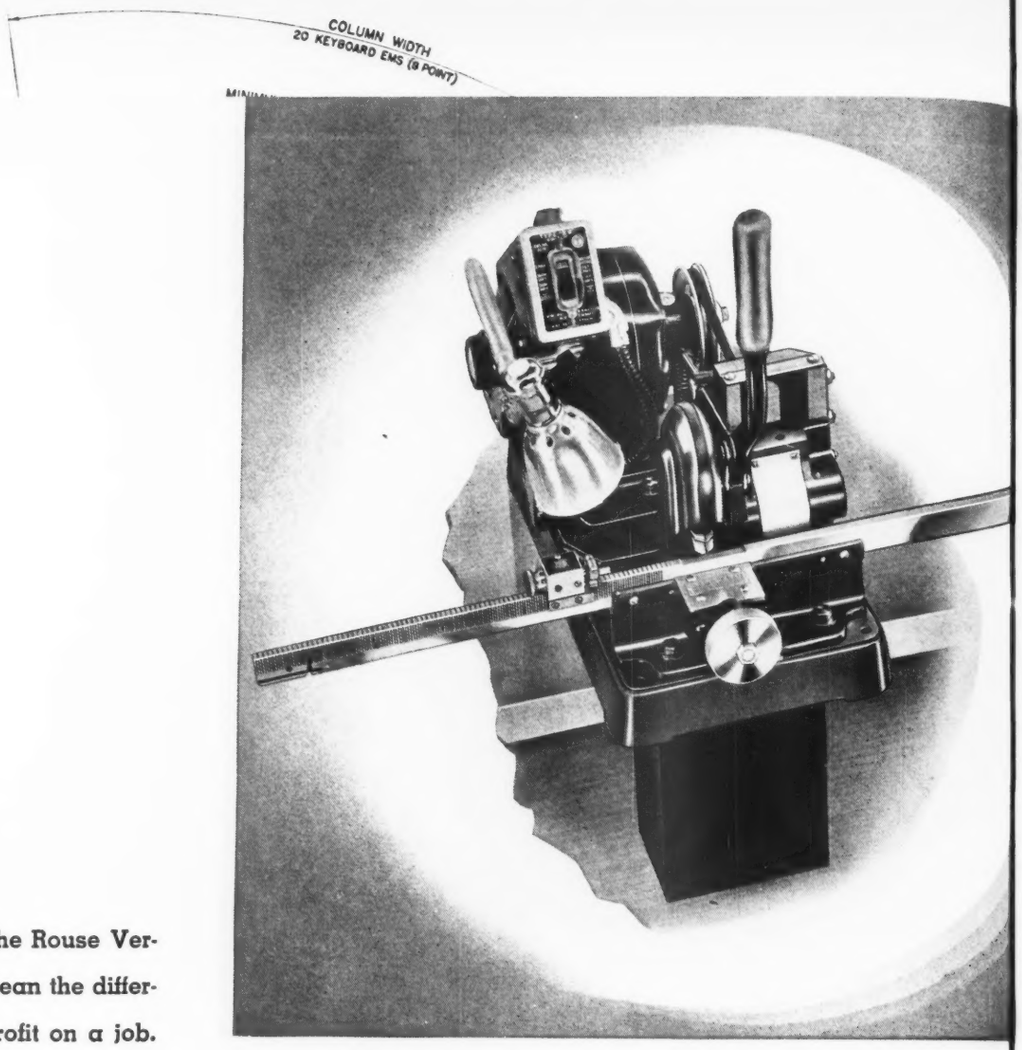
PRICED LOW for the smaller printer and publisher, the NEW *Economy Model* Rouse Vertical Rotary Miterer meets a distinct need where the capacity of the Master Model Vertical is not required.

More than 700 miters an hour may be cut on the NEW Economy Model Rouse Vertical Rotary Miterer.

Right and left hand miters are made at a single cut on strip material. It is not necessary to cut the strip to length before the miters are made. There is no preliminary "getting ready." Just place a full strip on the Rouse Vertical, set the gauge, clamp the strip, and cut one miter, or a hundred. Operation is simple. An easy pull on the convenient lever lowers the "V" shaped cutter and gives two miters almost instantly. An electric motor does all the work.

Miters cut on the Economy Model Rouse Vertical Rotary Miterer are accurate. They make perfect joining corners that facilitate lock-up and print without visible joints. Perfectly matched corners can be produced on any rule including light hairline.

Where composition is done, there should be a Rouse Vertical Miterer. The New Economy Model is the ideal machine for the smaller plant, or excellent auxiliary equipment for the larger plant where several machines are necessary for most efficient operation. Many plants have found it practical to use three or four machines.



Often the time saved by the Rouse Vertical Rotary Miterer will mean the difference between loss and profit on a job.

The NEW *Economy Model* Rouse Vertical Rotary Miterer *looks* speedy—and *it is.* It will do the work of hours in minutes. It enables you to meet price competition and make a profit.

Other mitering methods *cannot* possibly compete in production or quality with power mitered material. It would be as logical to set straight matter by hand.

The Economy Model Rouse Vertical Rotary Miterer will cut metal or brass strips up to 24 points in thickness. Perfect miters may be made for boxes only 12 points square—and at the same rate of speed as for longer strips.

The NEW Economy Model Rouse Vertical Rotary Miterer is equipped with ¼ H.P., 110 volt A.C. 60 cycle, single phase motor, adjustable lamp, hand clamp and cutter—just as illustrated. Placed on a bench or stand, it is ready for operation. It comes equipped with a gauge that measures strips for mitering up to 83 picas long. 24 Point capacity.....

Price **$165**

Economy Model — 36 Point capacity.....$195

OPTIONAL EQUIPMENT

Motor equipment other than above.....$10.00 Extra

Extension Gauge which measures strips for mitering up to 144 picas long.....$10.00

Pedestal for mounting for use where space is limited.....$20.00

Strip Material Cabinet. (same as used on Master Model Rouse Vertical Rotary Miterer.) Serves as a mounting for the Vertical Miterer, and provides a convenient storage space for rules and borders.....$40.00

Ornamental Border Stop. Essential equipment for cutting decorative borders and ornaments.....$10.00

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EVER BREAK A BOTTLENECK?

Bottlenecks that slow down production
can be caused by many things—
including the inability to obtain
materials when needed.
That's been the biggest bottleneck
Sta-Hi has had to crack in recent months.
Conditions beyond our control
have made the task difficult.
But we've kept plugging at it and we
still are.
And Sta-Hi Master Formers and other Sta-Hi
machinery units are being delivered
just as rapidly as possible.
Despite the handicap of shortages of
materials and parts, Sta-Hi's skilled engineers
and craftsmen are still turning out 50% more
badly needed equipment than ever before!
So thanks again for your patience
and understanding—your "turn" may come
sooner than you expect . . .

STA-HI

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WHEN

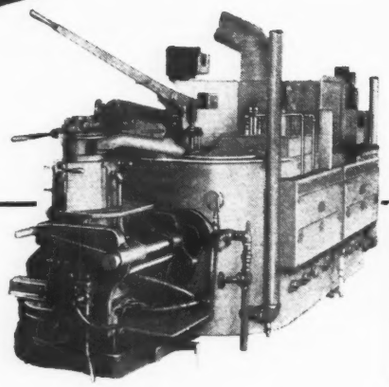
THE BUSINESS MANAGER SQUAWKS AT FUEL BILLS

YOU'D LIKE TO CUT DROSS LOSSES

YOU'RE SICK OF "NURSING" METAL TEMPERATURES

THEN

follow over 200 publishers to KEMP 'immersion-fired' melting



THIS POT CUT DROSS LOSSES 18%

. . . for a large eastern daily which operates two stereo rooms in two plants—one with KEMP immersion-*gas*-fired pots (like the 10-ton unit shown), the other with electrically-heated pots. Because the spent products of combustion from a KEMP pot blanket the metal, the stereo room on gas boasts 18% less dross per 10,000 plates (15,500 lbs. per year versus 18,230 lbs.). Here's clear-cut proof of just one of KEMP's five advantages in stereo and electro work: closer temperature regulation, over 500 pots in service, 40% guaranteed savings in energy cost, less dross, better working conditions.

The stereotyper or electrotyper who melts with KEMP "immersion-firing" profits three ways.

First, he saves money in fuel bills. KEMP will guarantee a full 40% saving over existing methods—because electrical power (on the average) costs that much more than gas, and because other gas-fired melting techniques are that much less efficient.

Second, he enjoys better casting results. Metal is held at temperature more precisely. Temperature recovery is more rapid after cold pigs or "tails" are added. The heating units are of large area, and *inside* the pot rather than outside.

Third, he uses less metal—because dross-loss is less. The flue gases resulting from combustion sweep over the top of the molten metal and thereby keep air away.

That's why over 200 publishers praise more than 500 KEMP installations. Let us show *you*, with letters and reports from men you know well.

KEMP OF BALTIMORE

PRECISION CARBURETION + ADAPTED COMBUSTION FOR INDUSTRY'S HEAT-USING PROCESSES
ATMOSPHERE GENERATION & ADSORPTIVE DRYER SYSTEMS FOR PROCESS CONTROL AND PROTECTION

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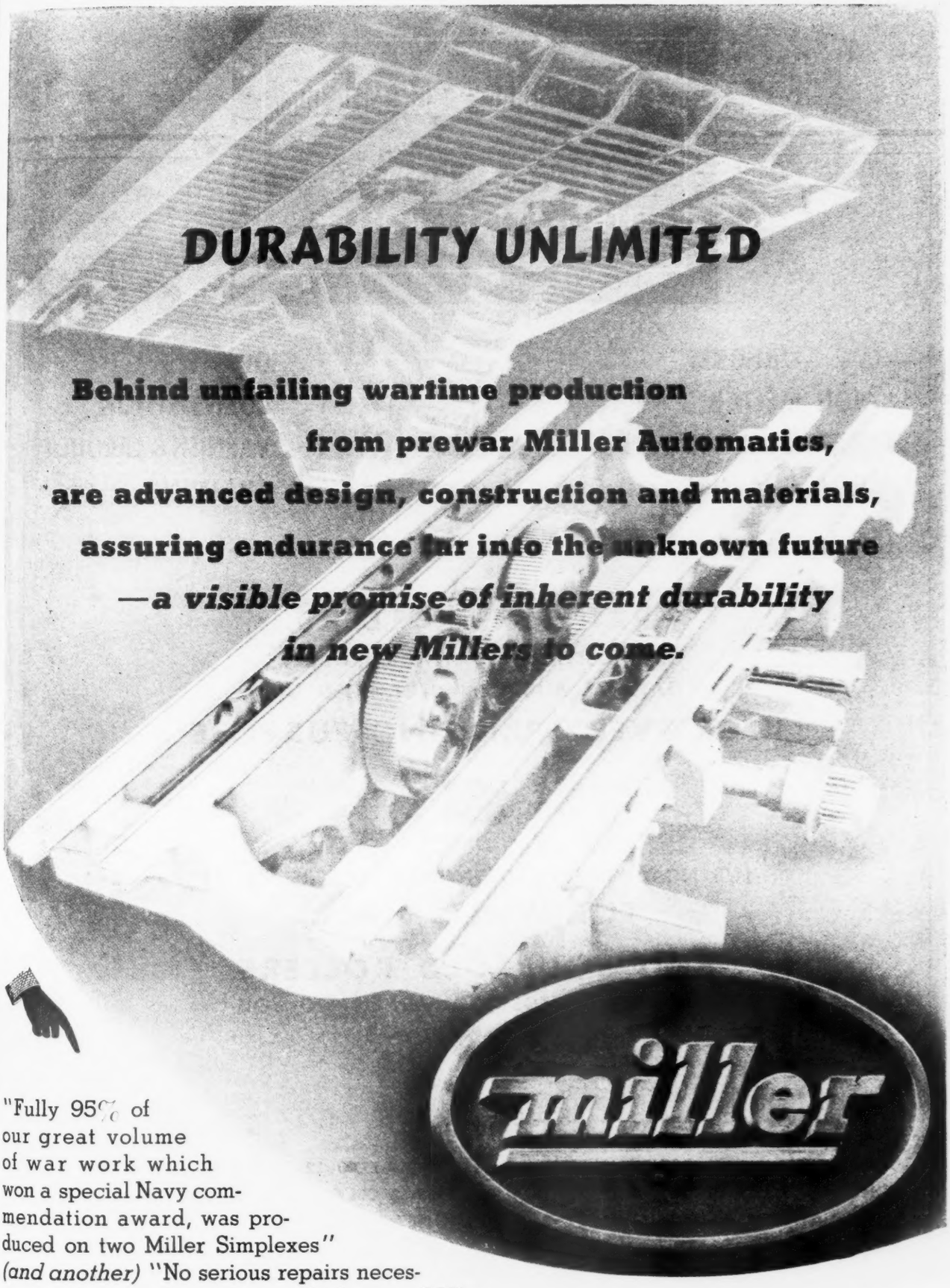
DURABILITY UNLIMITED
Behind unfailing wartime production
from prewar Miller Automatics,
are advanced design, construction and materials,
assuring endurance far into the unknown future
—a visible promise of inherent durability
in new Millers to come.
miller

"Fully 95% of our great volume of war work which won a special Navy commendation award, was produced on two Miller Simplexes" *(and another)* "No serious repairs necessary, and no mechanic has worked on our Millers since installed in 1922" *(and still another)* "Our net average of 2370 impressions hourly per 8 hour day, includes all unproductive time—an average of 4,858,000 impressions yearly." These unsolicited comments from Miller users now purchasing more Miller Automatics, typify many other similar recommendations—and confirm the wartime statement reprinted above.

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DALLAS 1	INDIANAPOLIS 2	NASHVILLE 3	SPRINGFIELD, O.

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PRINTING EQUIPMENT *Engineer*

Volume 72 Number 5

A technical publication
for the mechanical executive
responsible for printing production,
equipment and supplies
in the commercial, magazine,
private plant and daily
newspaper field.

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Printed in U.S.A.

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Printers equipped to turn out a product of outstanding quality have the edge on those whose only stock in trade is so many machines and a price that is cut to the bone.

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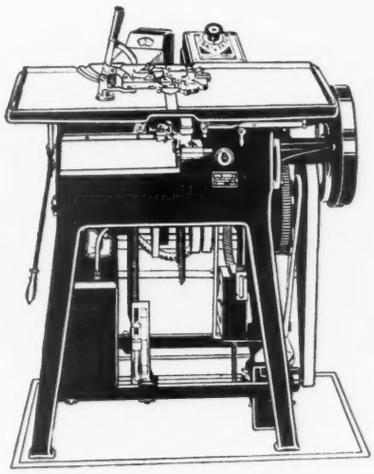

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We have prepared a special folder giving complete information on SPEED KING BLACKS. Send for your free copy now.

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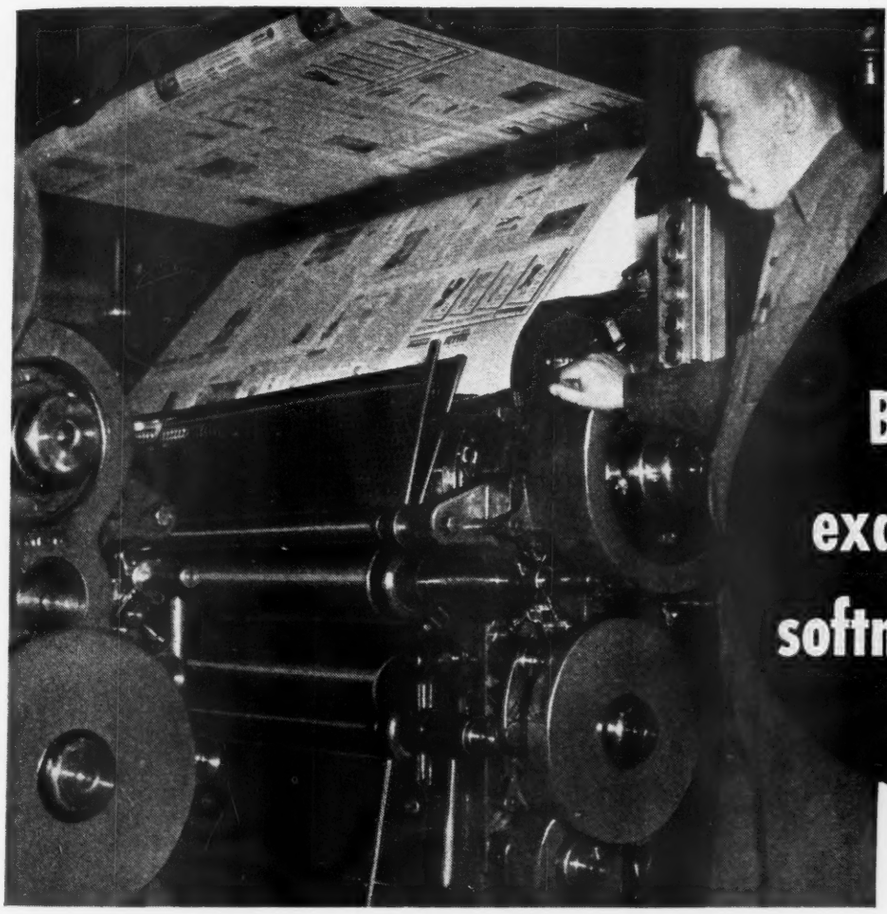

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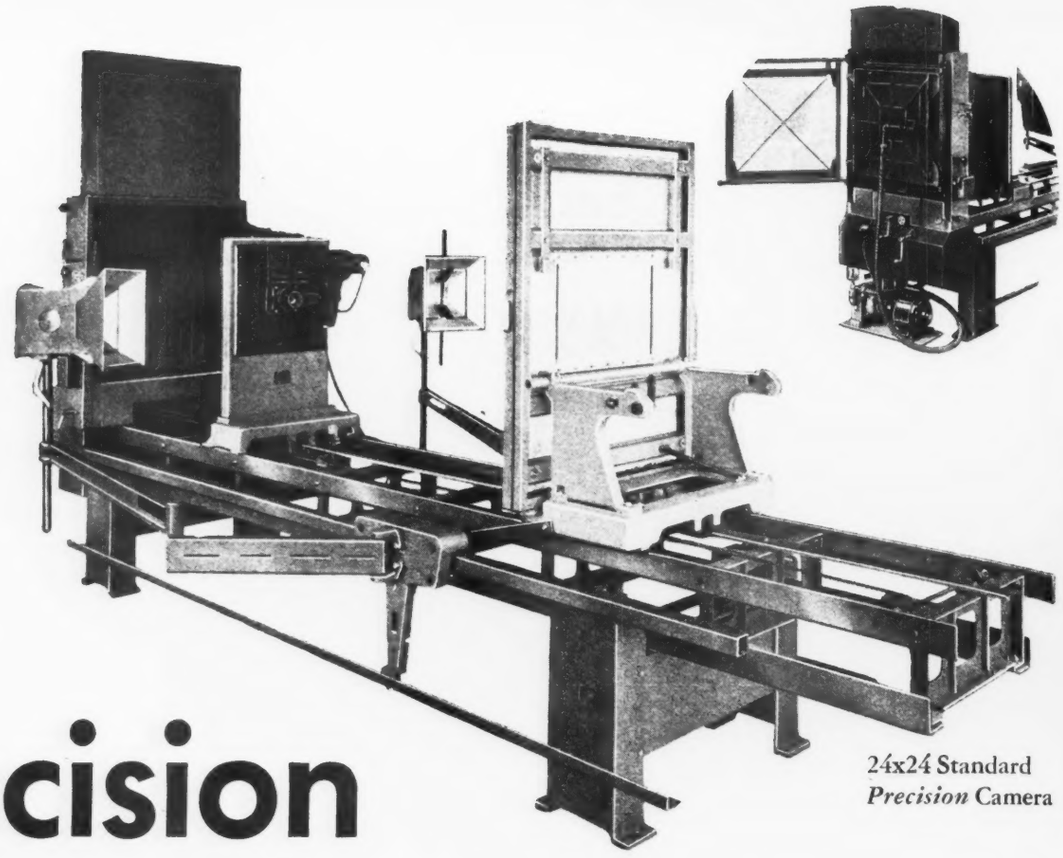

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Precision Built by ATF

ATF *Precision* Cameras and Offset Platemaking equipment are now manufactured by ATF . . . under the supervision of trained production personnel from our own factory. This equipment was formerly manufactured exclusively for ATF by Valette, Incorporated.

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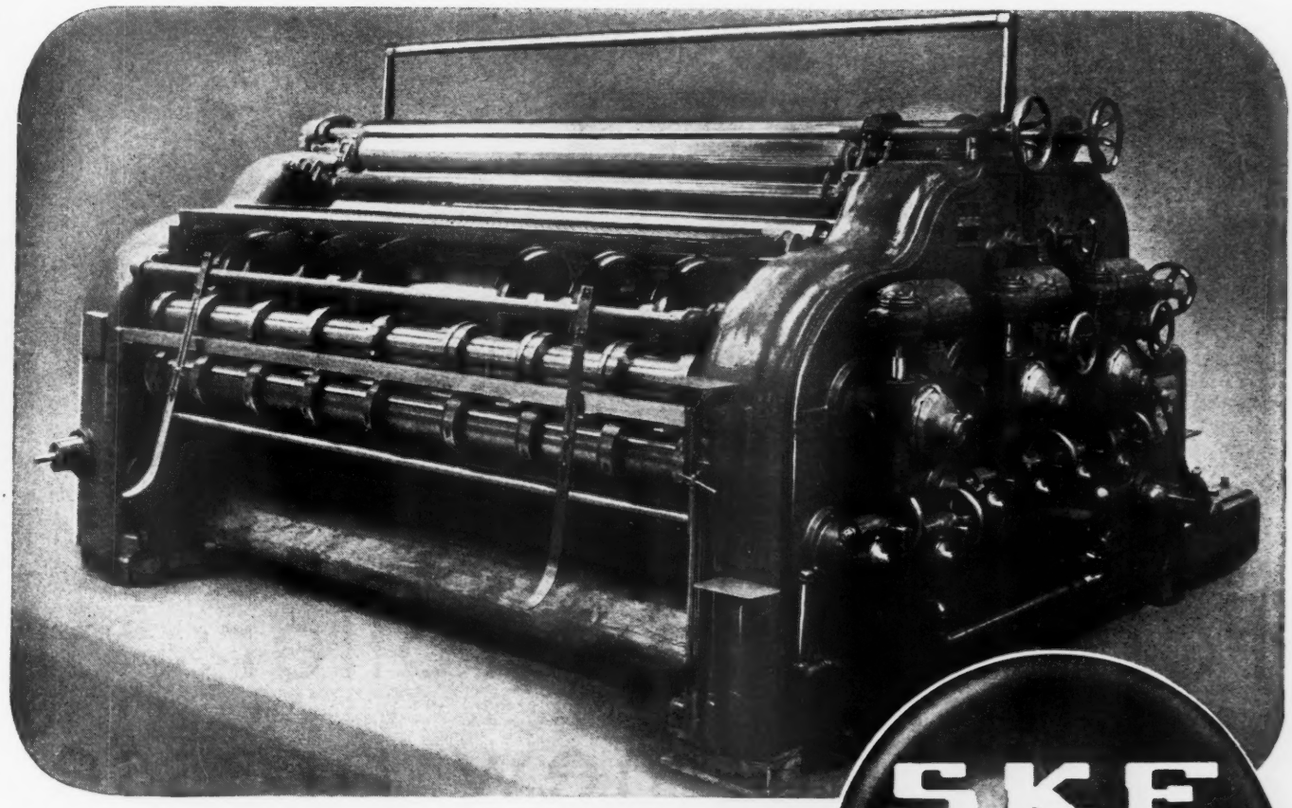
Branches in Principal Cities

Types used: Garamond Bold, Spartans, Franklin Gothic Extra Condensed

200 Blanks per Minute

ON SKF-EQUIPPED PRESSES!



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Precise printing of 200 blanks per minute in one or two colors on this Printing, Slotting and Trimming Machine is a job that calls for the *right* bearings in the *right* places. That's why every antifriction bearing on this machine is an SKF. With every SKF, there's precision—plus a combination of rolling alignment, high-speed reliability and freedom from wear. These are the factors that insure accurate register, long life, and low running costs—not only on this machine but on presses, routers, matrix rollers, shavers, conveyors, etc., as well. Wherever you find printing equipment uniting extreme accuracy with high speeds, you'll find that SKF puts the right bearing in the right place. 609-I

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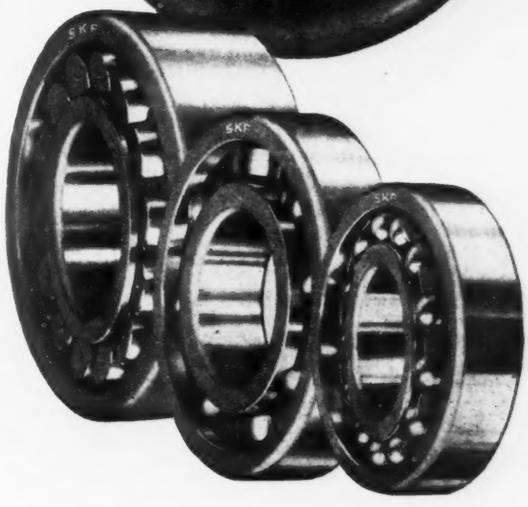
Puts the Right Bearing in the Right Place



For the **finest** rollers on those fine new presses

☆ ☆ ☆ *Specify Ideals*

You can afford only the best on those post-war presses you will soon install in your plant. On these machines, many of which cost thousands of dollars, you will want to exercise the wisest economy by using all Ideal rollers.

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GET THE LOWDOWN ON HYDRY!

New booklet gives you all the information about

—BRILLIANT QUICK-DRYING ODORLESS INK

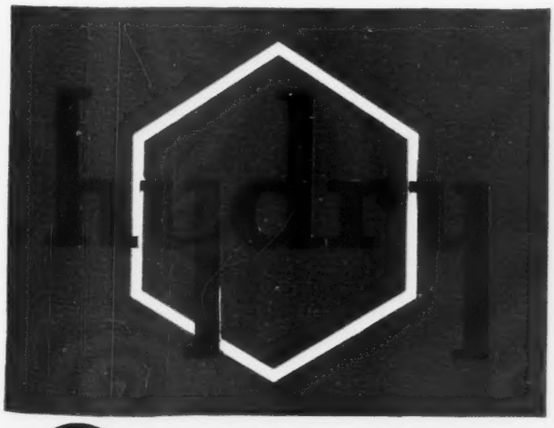
The news of HYDRY is spreading fast—and no wonder! For here is a *moisture-set* ink that on presses equipped with steam applicators dries and hardens instantly. This new booklet tells you all about this all-important development in package printing . . . shows you simply and directly by text and picture how it eliminates many food, confectionery and tobacco packaging problems.

Developed by Michigan Research Laboratories, subsidiary of Sun Chemical Corporation, HYDRY speeds production. No more waiting days or weeks for ink to dry. Waxing, folding or die-cutting operations can be started as soon as sheets come off the press.

And HYDRY is absolutely odorless—no residual ink odors to affect milk, cheese, butter, shortening, meat, cakes, breads, cereals, ice cream, sugar, flour, chewing gum, candy, tobacco or any one of numerous other products. Prints bright and clean, in a full range of brilliant colors.

Write on your letterhead for this new booklet.

Check your package-printing problems against these HYDRY features



- **Fast Drying**—Dries on most stocks in 10 to 30 minutes; on presses equipped with steam applicator, dries *instantly!*
- **Odorless**—Finished prints entirely devoid of ink odor.
- **Brilliant Colors**—Ink film reflects light, gives superior brilliance and cleanliness.
- **Non-Offset**—Possibilities of offset reduced to a minimum.
- **Non-Smear**—Dry-hard finish extremely resistant to rubbing and smearing.
- **Non-Crystallizing**—Can be overprinted, even after several weeks.
- **Sharper Printing**—Does not spread or bleed.
- **Folding Qualities Improved**—Affords better moisture content in paper stock.
- **Improves Heat-Sealing of Waxed Wrappers**—Will not mix with wax film during heat-sealing operations.

GENERAL PRINTING INK COMPANY DIVISION

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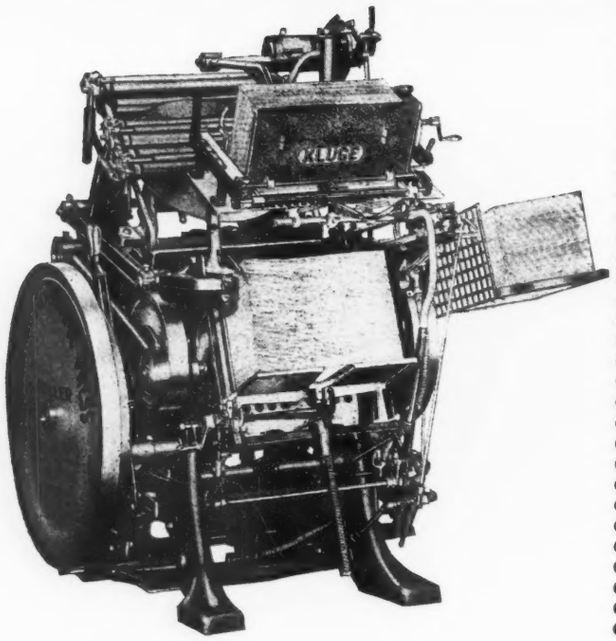

Kluge

IN BUYING A PRINTING PRESS... INVEST IN THE BEST!

...WORTH WAITING FOR TODAY

• The purchase of a printing press is far different from any other purchase that a printer makes for his business. The purchase is not comparable to ordering a ream of paper, requisitioning a pound of ink, or any of the other varied purchases that are made during the course of a business life.

The purchase of a press is a capital investment and that purchase should be given all of the care, thought, and analysis that is by right associated with any major investment in one's business.

Bear in mind, Mr. Printer, that you are going to have to live with your equipment for a long time. Buy the type of equipment that will earn a profit for you in both good and bad times. The Kluge has proven time and time again that it is the busiest press in any pressroom. Busy equipment is profitable equipment and an investment in a Kluge is a profitable investment—a press worth waiting for today!

BRANDTJEN & KLUGE, INC.

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SPOT COLOR

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WHERE AND WHEN YOU WANT IT

HUBER makes many types of ink—but *newspaper ink* is a Huber specialty and has been for over half a century.

Huber supplies black ink to leading newspapers in the United States and foreign countries. For example, 10 out of 13 Ayer Award winners used Huber ink. Through long experience and association Huber knows what newspaper publishers want and has set up an organization to exactly fit these needs.

So it's news—and good news!—when Huber provides "spot color" as well as black. For here is real newspaper color from the laboratories and factories of a company that knows newspaper needs. Here, too, is a distributing organization tailored to newspaper requirements—branch offices and warehouses in all newspaper centers; well organized and efficient offices established for many years. Working with newspapers is a "Huber habit"—a mighty good habit, too, in emergencies.

Yes, it's "spot color"—on the spot—where and when you want it—when you deal with Huber. Our *newspaper experienced* technical staff is at your disposal. For complete information address the branch office nearest you: New York; Chicago; St. Louis; Boston; Borger, Texas.

HUBER INKS

HUBER PRODUCTS IN USE SINCE 1780

DUPLEX

PRESSES THAT "GROW" with YOUR NEWSPAPER

Since Duplex introduced "Unit Design" rotary presses, nearly 40 years ago, greater simplicity and standardization have been guiding Duplex principles in engineering newspaper presses. *Duplex presses can "grow" along with your newspaper!* The initial installation need provide only the capacity required right now — 8, 12, 16, 20, 24 pages or more — because additional four page units, color cylinders, and special equipment can be installed in the future without delaying a single edition. Many a newspaper, in its step-by-step expansion from flat bed presses to large rotary installations, has consistently chosen Duplex equipment. Duplex originated all the standard types of newspaper presses in use today. When new demands in news printing confront you, Duplex experience and craftsmanship are at your command.

THE DUPLEX PRINTING PRESS COMPANY

Builders of the World's Finest Newspaper Presses

BATTLE CREEK, MICHIGAN

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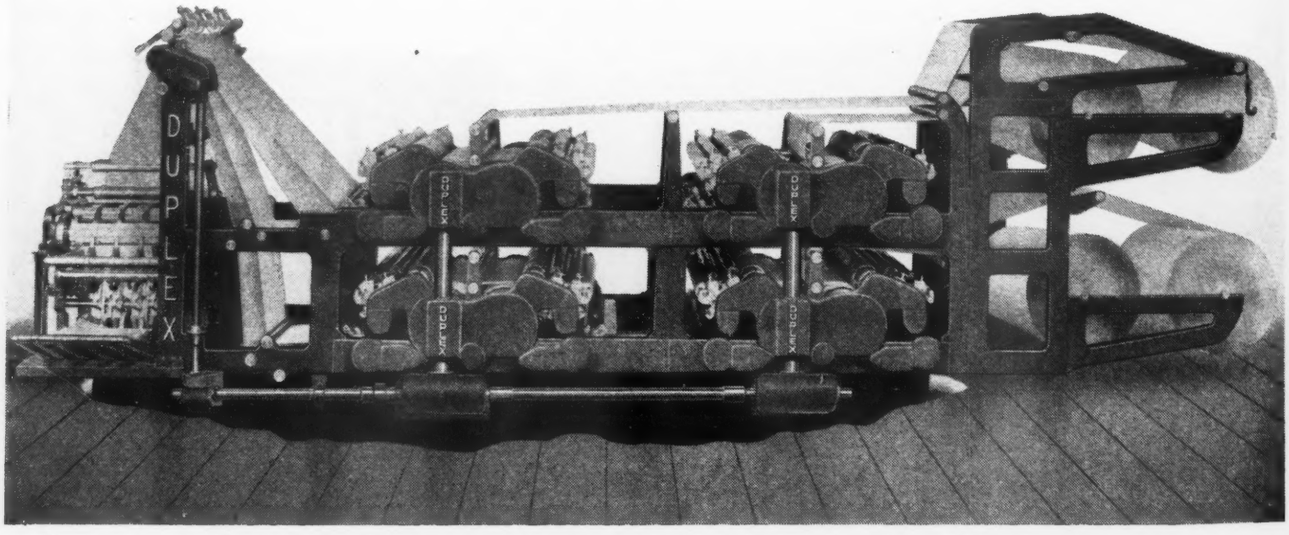
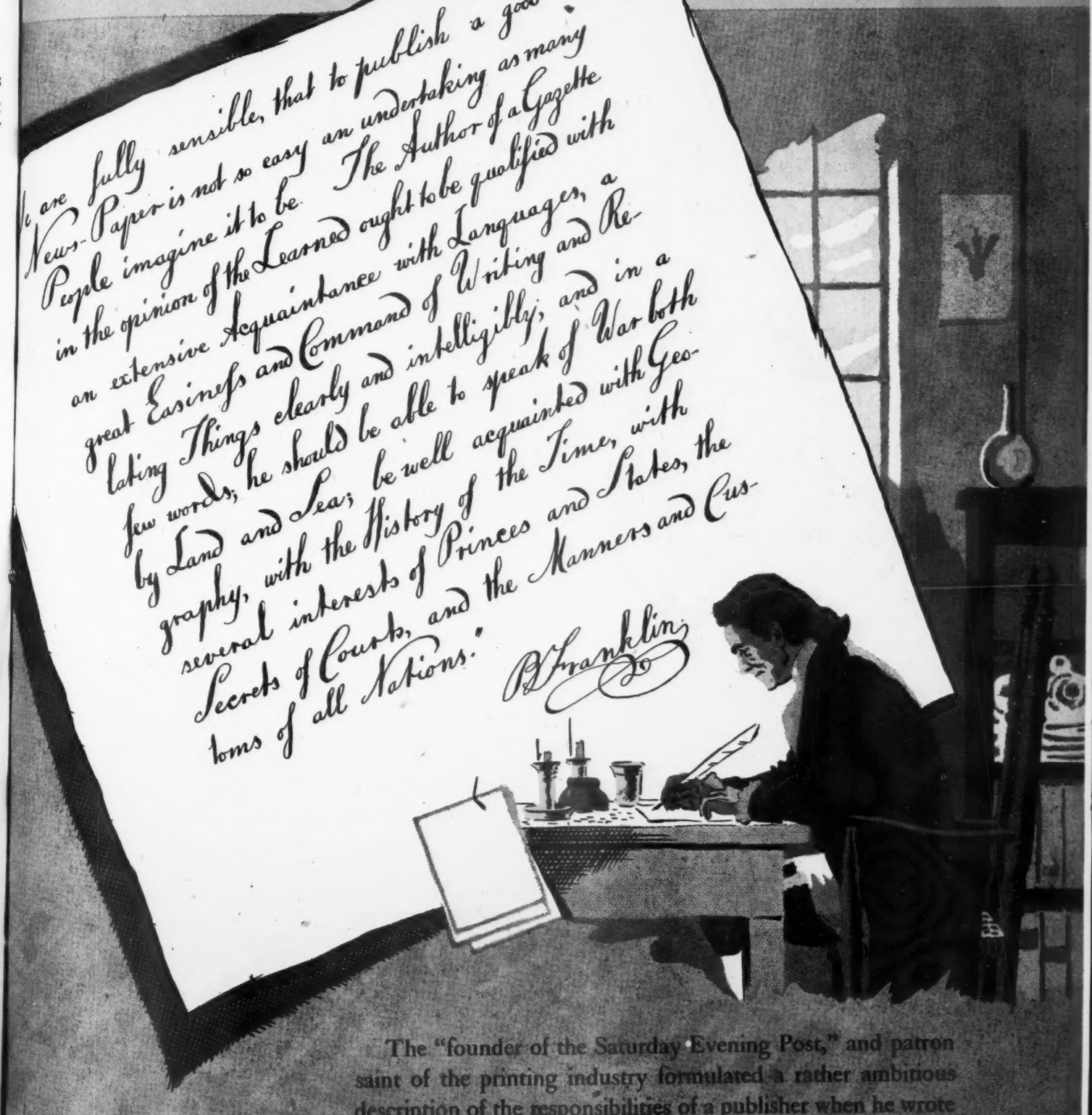
DUPLEX STANDARD TUBULAR PLATE PRESS: The ideal press for the newspaper graduating from flat bed to stereotype printing. Compact, convenient, easy to operate, economical. Prints any number of pages up to your full plate capacity. Produces up to 30,000 an hour from one set of plates. Additional four page units, balloon and auxiliary formers, and color equipment can be installed as needed.



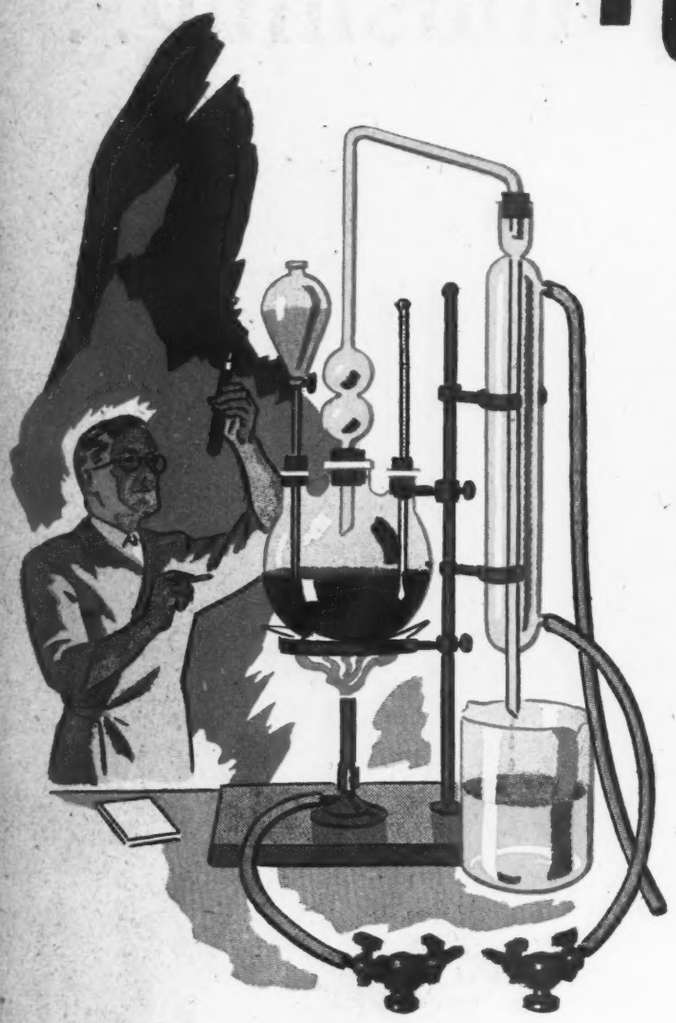
H. Morrill Division presents No. 5 of a series of inserts dedicated to American Journalism

Formula for Newspaper Publishing..


It are fully sensible, that to publish a good
News-Paper is not so easy an undertaking as many
People imagine it to be. The Author of a Gazette
in the opinion of the Learned ought to be qualified with
an extensive Acquaintance with Languages, a
great Easiness and Command of Writing and Re-
lating Things clearly and intelligibly, and in a
few words, he should be able to speak of War both
by Land and Sea; be well acquainted with Geo-
graphy, with the History of the Time, with
several interests of Princes and States, the
Secrets of Courts, and the Manners and Cus-
toms of all Nations."
B. Franklin

The "founder of the Saturday Evening Post," and patron saint of the printing industry formulated a rather ambitious description of the responsibilities of a publisher when he wrote the above on the first issue of the Pennsylvania Gazette in 1729.

Responsibilities



Benjamin Franklin would find a considerable difference in the respo bilities of modern publishing today. The strides made by publishers in the l two centuries would be a startling revelation to the sage of printing . . . and advances in reproduction equipment and materials would truly astonish eminent publisher.

MORRILL recognizes its responsibilities to publishers by devoting o a century of experience and the combined skills of their technicians, scienti engineers and craftsmen to the service of disseminating the news through t medium of newsprint.

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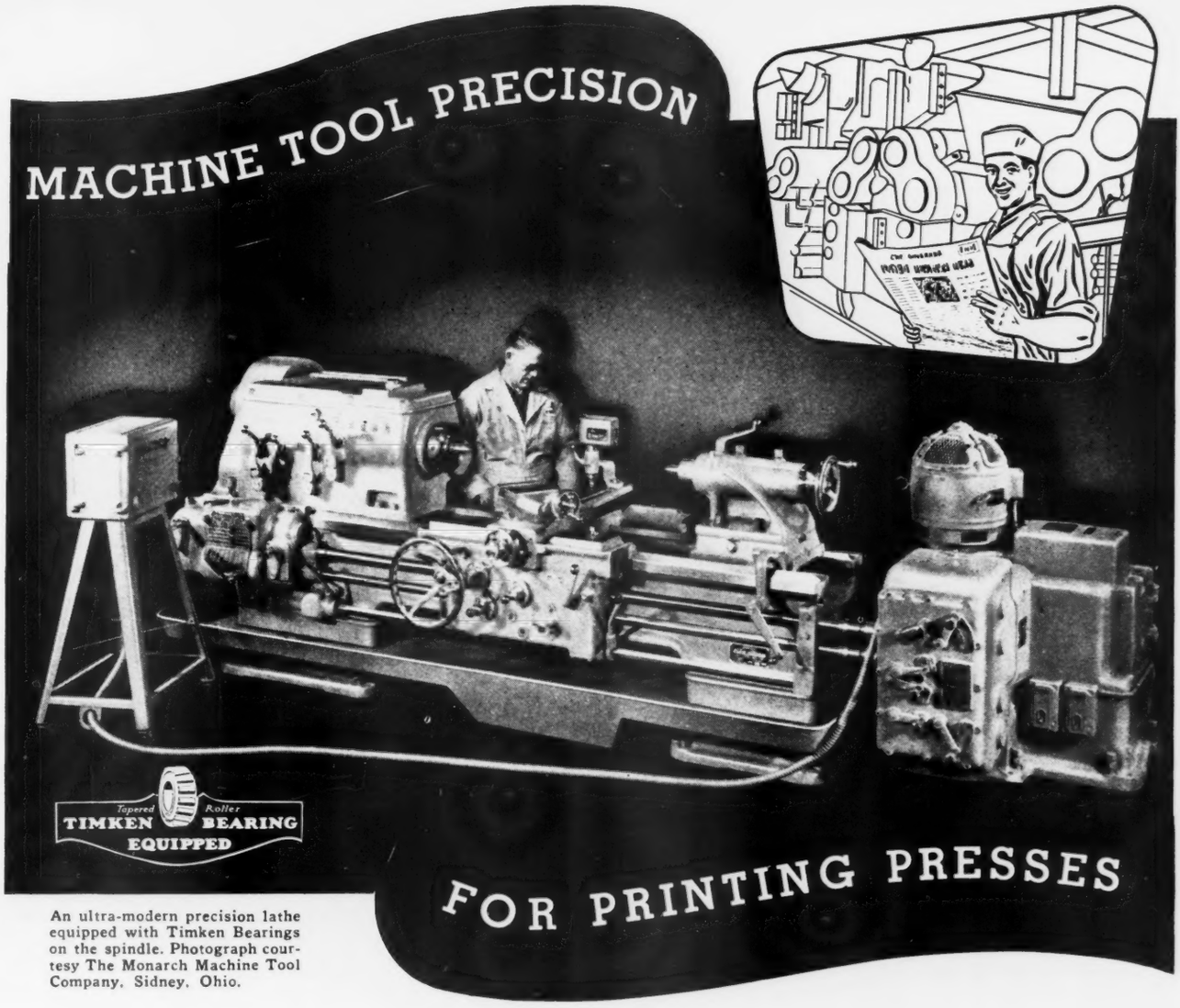
MACHINE TOOL PRECISION FOR PRINTING PRESSES



An ultra-modern precision lathe equipped with Timken Bearings on the spindle. Photograph courtesy The Monarch Machine Tool Company, Sidney, Ohio.

On modern machine tool spindles—where operating tolerances are measured in thousandths of an inch—machine tool manufacturers use Timken Tapered Roller Bearings.

What better bearings could you have for your new printing presses? With plate and impression cylinders mounted on Timken Roller Bearings you will combine fine and permanent printing quality with higher speeds and greater endurance; for besides holding moving parts in correct and constant alignment, Timken Bearings eliminate friction and safely carry radial, thrust and combined loads.

Timken Bearing superiority has been proved on some of the world's largest and fastest rotary presses—both letterpress and offset. Because Timken Bearings are known and preferred the world over, they not only make *better* printing equipment, but also *better selling* equipment. The Timken Roller Bearing Company, Canton 6, Ohio.

NOTE { **Take no chances—look for the trade-mark "TIMKEN" on every bearing you use.** }

OUR MOVING DAY IS ALSO

MILWAUKEE SAW TRIMMER CO. BECOMES THE *Morrison* COMPANY—AND MOVES INTO THIS MODERN NEW FACTORY . . .

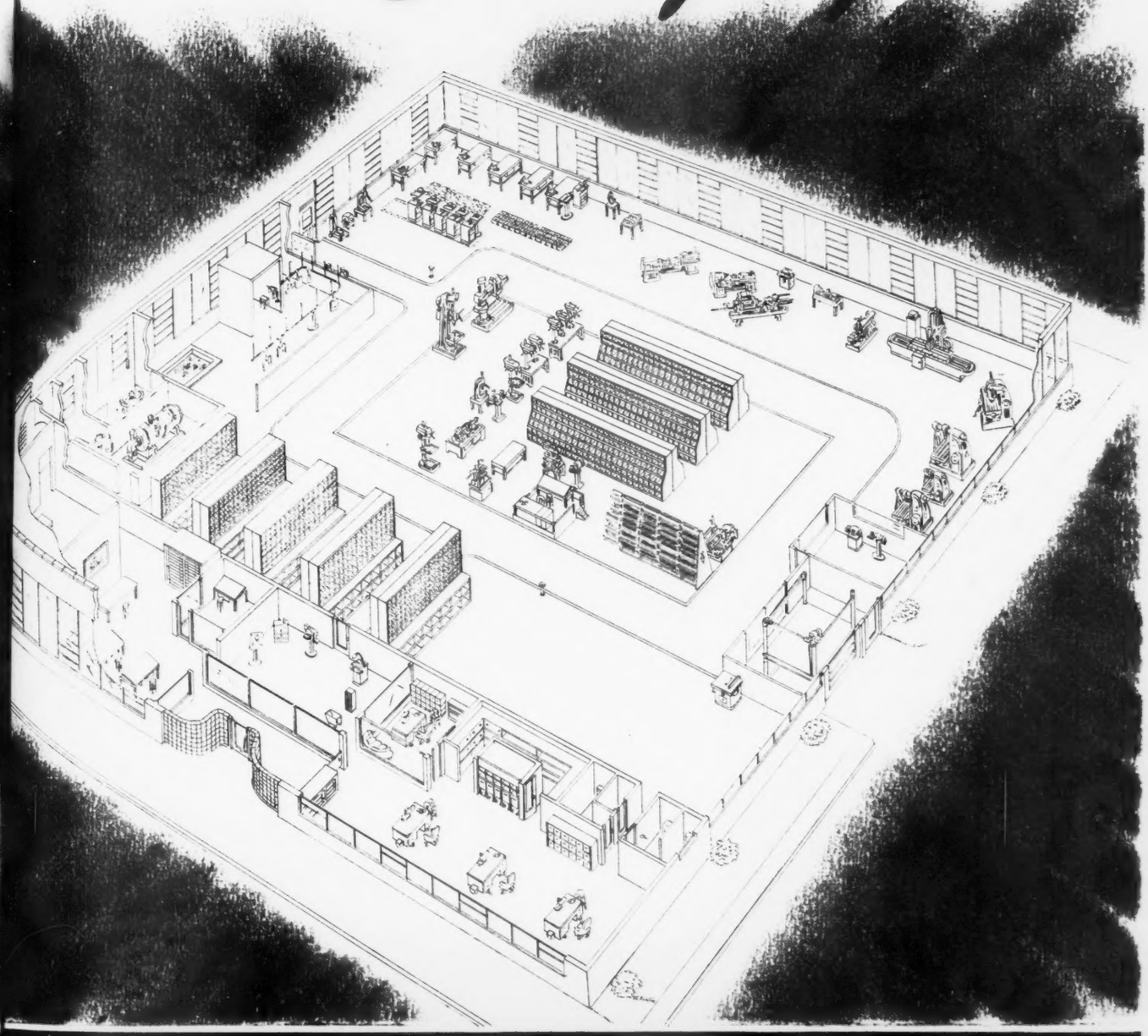
COINCIDENT with the change in their firm name, The Morrison Company announces occupancy of a new plant which will triple the production facilities for the manufacture of "C&G" products. Incorporated in the planning of this new building are the most modern facilities for streamlining production and increasing the organization's capacity for wider service.

The Morrison Company line includes the famous "C&G" Saw Trimmers, Router, Jigsaw, & Type-High Machine; Router & Type-High Machine; Strip Material Cabinet; and Waste Receptacles. Illustrated literature covering any of these items will be sent upon request.

The *Morrison* Company

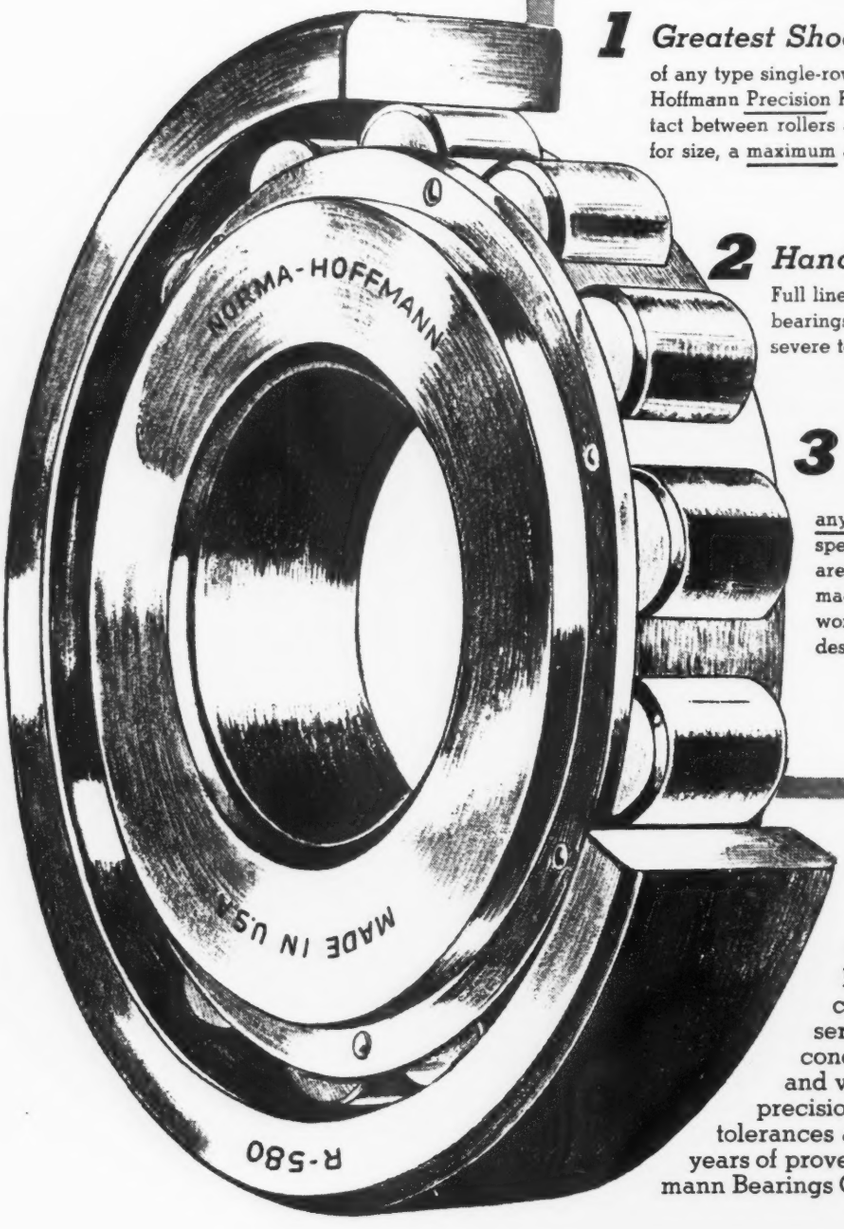
125 W. MELVINA STREET MILWAUKEE 12, WISCONSIN

SO "Name Changing" DAY



MANUFACTURERS OF C&G SAW TRIMMERS

Brutes for Strength



1 ***Greatest Shock Absorbing Capacity*** of any type single-row bearing. Here's the secret: Norma-Hoffmann Precision Roller Bearings provide full line contact between rollers and races. That means you get, size for size, a maximum area to support shock load.

2 ***Handles Up to 50% Overload*** Full line contact, the design feature of these bearings, also provides ample margin for severe temporary overloads.

3 ***Lowest Coefficient of Friction*** under heavy load of any type bearing, plus unsurpassed speedability. These important benefits are a result of Norma-Hoffmann's 100% machined bronze retainer, precision workmanship and short, parallel roller design.

When the going is so tough no other anti-friction bearing will stand up—use Norma-Hoffmann Precision Roller Bearings. You will continue to get dependable service under critically severe conditions of speed, load, shock and vibration. These bearings are precision-made to unusually exacting tolerances and are backed by years and years of proved performance. Norma-Hoffmann Bearings Corporation, Stamford, Conn.

"NORMA-HOFFMANN"

Precision Ball, Roller and Thrust Bearings

FIELD OFFICES: NEW YORK, CHICAGO, CLEVELAND, DETROIT, PITTSBURGH, CINCINNATI, LOS ANGELES, SAN FRANCISCO, PORTLAND, ORE., SEATTLE, PHOENIX

Courtesy
Chicago Tribune

Color Printing ON GOSS PRESSES

"During the last five years the Daily *Tribune* (Chicago) has provided its readers with color cartoons, color maps, and occasional color picture pages. With its Easter color page, the *Tribune* demonstrated that it not only can print four color pictures on high-speed news presses but also that it can obtain and process color photos in time to print them along with news stories of the events photographed."

(*Printing Equipment Engineer*) May 1946

"It's a GOSS"

If interested in Color Printing for newspapers let us have your requirements and we will show you how it can be accomplished most economically with a GOSS Press, either a Headliner or Unitube.

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Goss Printing Press Co., Ltd.

Federated — MODERN HEADQUARTERS FOR NON-FERROUS METALS

CHEMICAL CONTROL—The products of a modern smelter are engineering materials produced to meet the specific requirements of the industrial designer. In Federated, precise chemical and metallurgical control is used in each step of the smelting process. The metal is tested before it goes into the furnace, while it is in the furnace, and after it leaves the furnace—a triple check on quality and uniformity. The modern equipment used by Federated to do this job includes chemical apparatus, spectrograph, polarograph, and colorimeter. The laboratory illustrated is only one of the many we have throughout the country to serve you.

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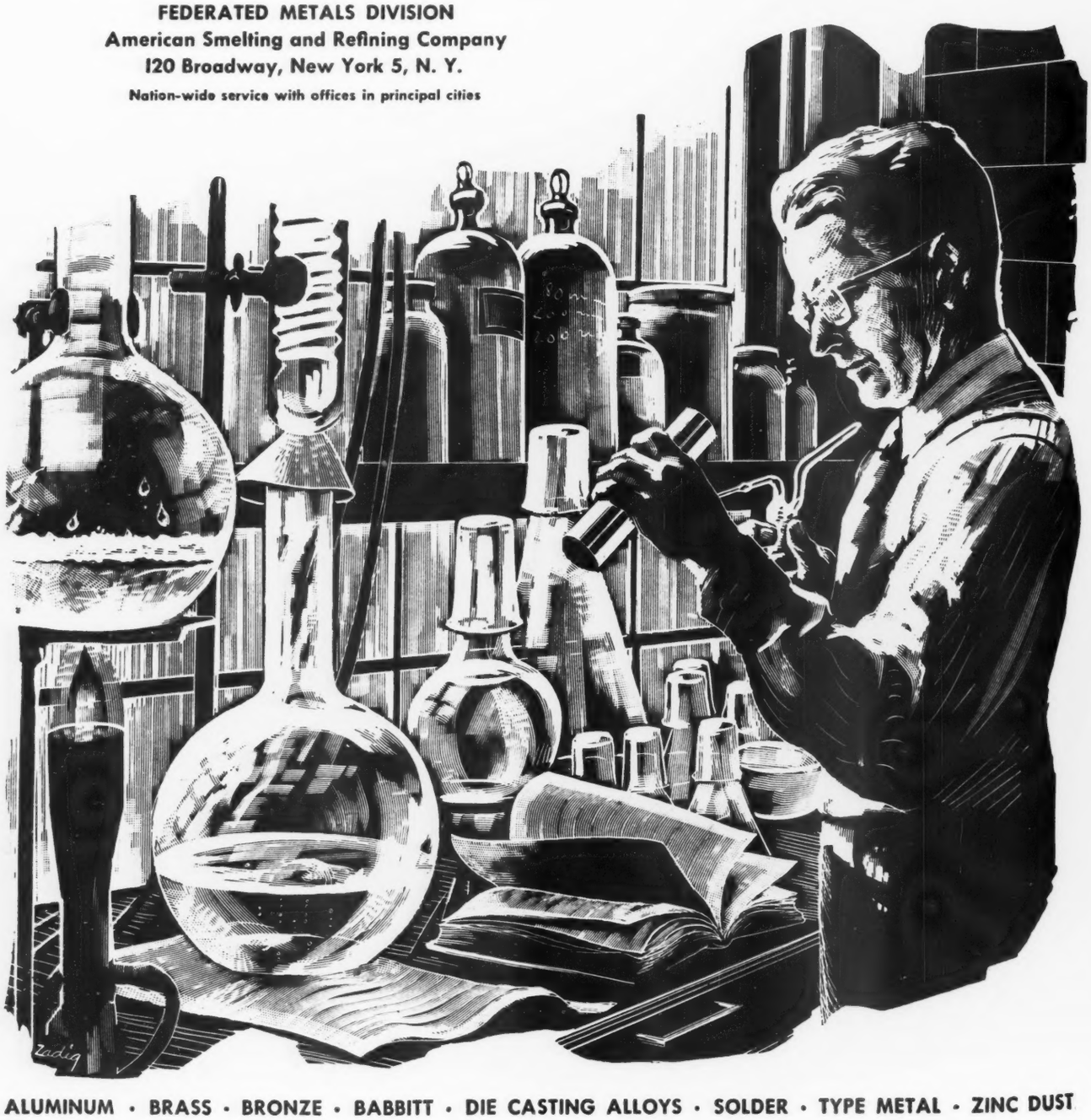
FEDERATED METALS DIVISION
American Smelting and Refining Company
120 Broadway, New York 5, N. Y.
Nation-wide service with offices in principal cities



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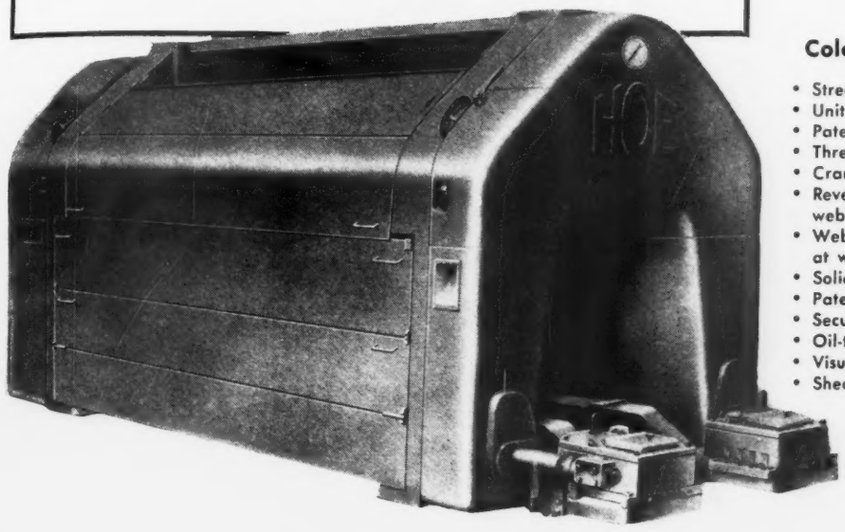
For Maximum Versatility and Economy choose

ALL-HOE EQUIPMENT

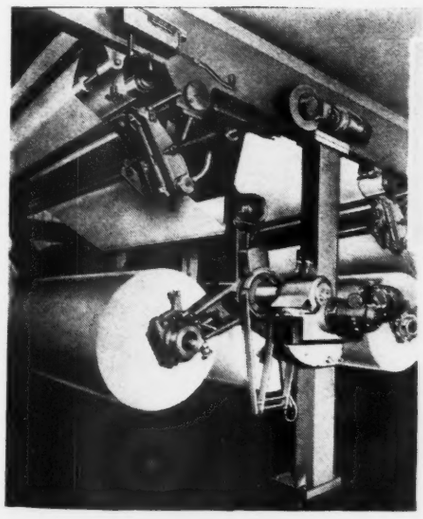
The new HOE COLOR-CONVERTIBLE NEWSPAPER PRESS is so designed that parts necessary for any desired color facilities may readily be installed at minimum expense, at any time.

In addition to the fact that the printing units are pre-engineered to provide extra colors *where* and *when* you want them, the folder and reel likewise have many new features designed to enhance the over-all efficiency and economy of this coordinated press.



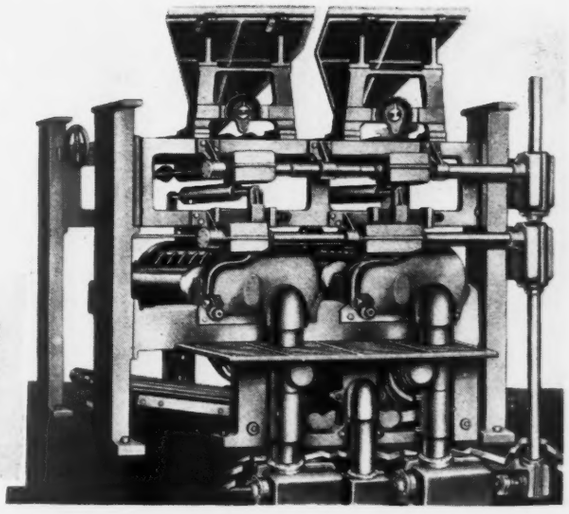
Features of the Hoe Streamline Color-Convertible Newspaper Press Unit

- Streamlined design
- Unit enclosure, allowing quick accessibility
- Patented pump system of ink feed
- Three cylinder ink distribution
- Crankshaft vibration
- Reversible feeding-in pans that speed up and safeguard web threading
- Web leads to either first or second impression couple at will
- Solid steel cylinders run in precision roller bearings
- Patented micrometer impression adjustment
- Secure and instantaneous plate lock-up
- Oil-tight gear casings
- Visual automatic forced-feed lubrication
- Shear pin protection



FEATURES OF THE HOE REEL, TENSION AND FULL-SPEED WEB SPLICER

- Maximum visibility and simplicity
- Simple, inexpensive splicing materials
- Electrically-controlled driven belt tension
- Tension adjustable for fractional width rolls
- Automatic auxiliary spindle brake tension
- Push-button control throughout, including push-button operated splice
- One-piece knife severs web completely



FEATURES OF THE HOE STREAMLINE SUPER-PRODUCTION FOLDER

- Anti-friction bearings throughout
- Selective main folder drive in oil-tight casings with forced-feed lubrication
- Circularly-guided formers
- Folding blades adjustable in unison
- Fold equalizing equipment
- Improved transverse collecting
- Anti-choke protection
- Shear pin protection

R. HOE & CO., INC.

910 East 138th Street, New York 54, N. Y.

BRANCHES: BOSTON • CHICAGO • SAN FRANCISCO

The No. 4 VANDERCOOK For *Fine Proofs*

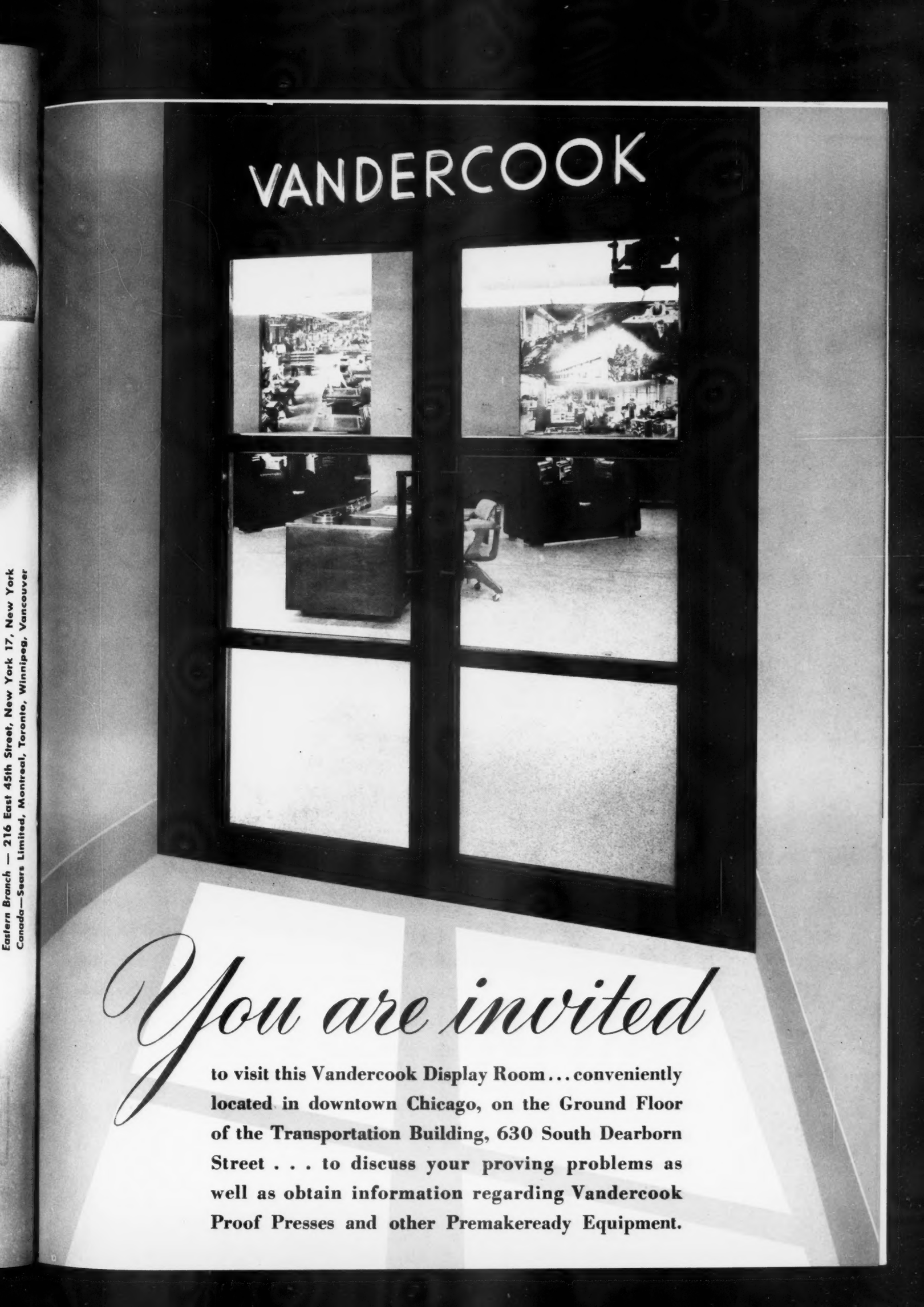
The improved No. 4 Vandercook Proof Press with *Power Ink Distribution* is ideal for producing high quality proofs for all purposes, including photographic reproduction. Form size 14″x18″; sheet size 14¾″x20″.

The model reproduced here is equipped with Split Vibrator, extra Side Guide and Patent Base for laboratory use by ink and paper manufacturers.

VANDERCOOK
PREMAKEREADY EQUIPMENT

VANDERCOOK & SONS, INC.

Main Office and Plant—900 N. Kilpatrick Ave., Chicago 51, Illinois
Chicago Display Room—1st Fl. Transportation Bldg., 630 S. Dearborn
Eastern Branch — 216 East 45th Street, New York 17, New York
Canada—Sears Limited, Montreal, Toronto, Winnipeg, Vancouver



You are invited

to visit this Vandercook Display Room... conveniently located in downtown Chicago, on the Ground Floor of the Transportation Building, 630 South Dearborn Street . . . to discuss your proving problems as well as obtain information regarding Vandercook Proof Presses and other Premakeready Equipment.

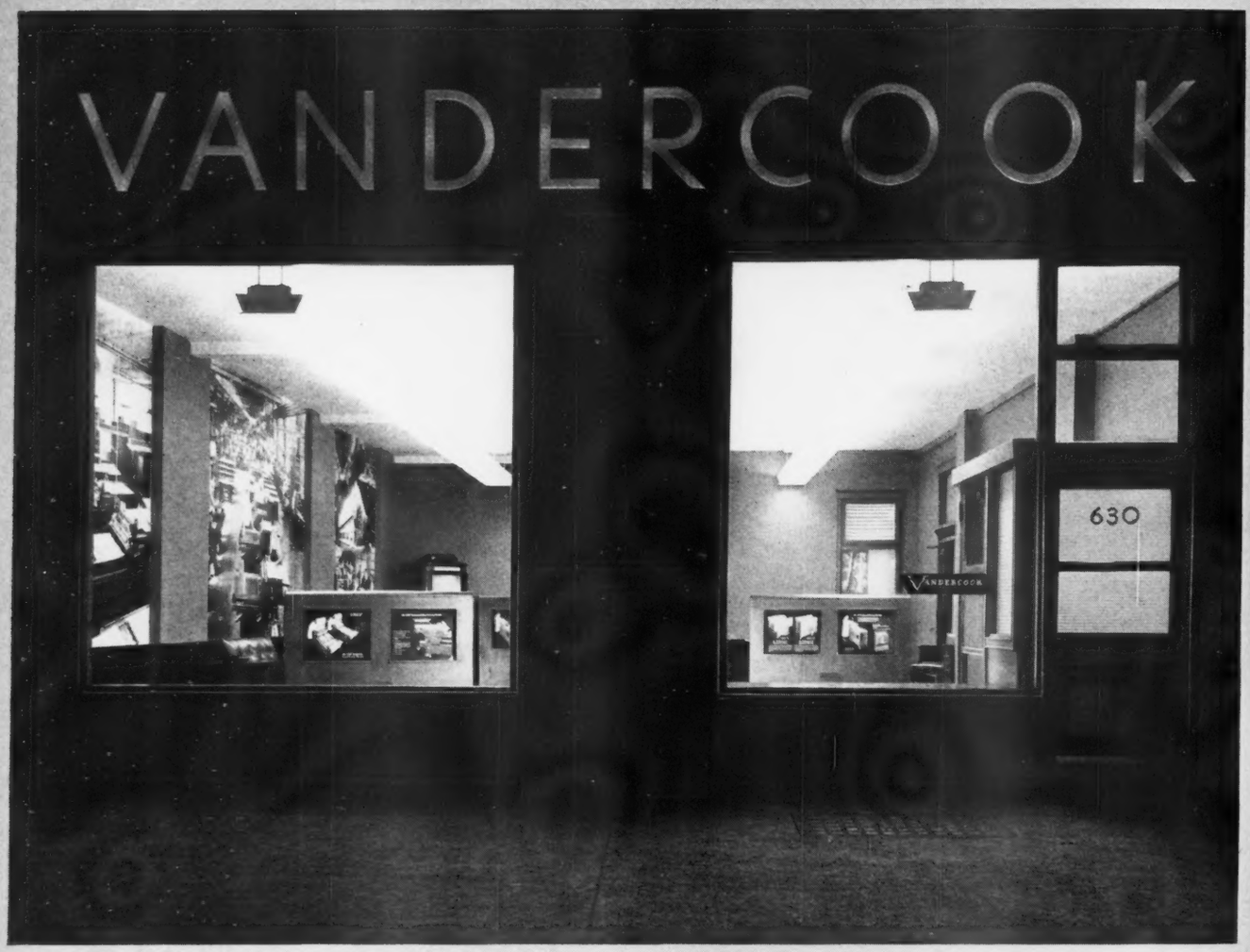
Eastern Branch — 216 East 45th Street, New York 17, New York
Canada—Sears Limited, Montreal, Toronto, Winnipeg, Vancouver

One day soon, the illuminated display cases in photograph above will be replaced by Vandercook equipment. Meanwhile, Vandercook machines are shown in actual operation on the screen in the right background. The three murals on the rear wall show, left to right, a battery of ten Vandercook Proof Presses in the New York plant of Conde Nast Engravers, Inc., a glimpse of our long assembly line, and interior and exterior views of the Vandercook plant.

VANDRC
PROOF PR BLOCK
PREMADY EQU

The Vandercook downtown showroom was planned to function as a complete sales office, and with that in view, the modern executive office pictured above was designed. Also, because of the convenient location of the showroom and its facilities, this executive office will prove ideal for conferences with our customers and all those in the graphic arts industry interested in Vandercook Proof Presses and Premakeready Equipment.

NDRCOOK
F PRE BLOCK LEVELLERS
PREMADY EQUIPMENT



Visit this showroom

on the Ground Floor, Transportation Building, 630 South Dearborn Street, Chicago, at your earliest convenience—even though you may not now be interested in additional equipment. It is easily reached by all means of transportation—and your visit will be most welcome.

VANDERCOOK
PROOF PRESSES • BLOCK LEVELLERS
PREMAKEREADY EQUIPMENT

VANDERCOOK & SONS, INC., *Main Office and Plant*, 900 N. Kilpatrick Ave., Chicago 51, Ill.
Eastern Branch, 216 E. 45th Street, New York 17

Reproduced above are various views of our plant in Chicago, where Vandercook Proof Presses and other Premakeready Equipment are manufactured. In the center is shown an exterior view of the plant. The remaining views give a glimpse of our Heavy Machine Tool Section and our Air Conditioned Tool Room, Engineering and Inspection Departments.

VANDERCOOK & SONS, INC.

Main Office and Plant: 900 N. Kilpatrick Ave., Chicago 51, Ill. • Chicago Display Room: 1st Fl. Transportation Bldg., 630 S. Dearborn • Eastern Branch: 216 East 45th St., New York 17

PREVENT OFFSET . . .
IMPROVE QUALITY . . .
INCREASE PRODUCTION . . .
SPHEREKOTE
TYMPAN PAPER . . .

SPHEREKOTE
BRAND
Glass Bead Coated
TYMPAN PAPER

AVAILABLE IN FOUR SPHERE SIZES

Large spheres, No. 10—Generally used for heavy board work and all heavy jobs.

Medium spheres, No. 13—Recommended for all general purpose work, long runs, type forms, on perfector and rotary presses.

Fine spheres, No. 15—Recommended for all classes of work including half tones and type forms on hard surfaced stocks.

Extra fine spheres, No. 17—Particularly well suited for job shop presses, for commercial work and high class printing in general.

AVAILABLE IN FOUR BACKING TYPES

Type A—Lightweight, flexible, oil-proof backing. Recommended for quality printing on all types of equipment.

Type C—Medium weight, tough, oil-proof backing. Recommended for all rotary and perfector presses.

Type 17C—Available only in light weight, flexible, oil-resistant backing.

Type E—Heavy weight, strong, oil-resistant backing. Less flexible than Type A or Type C. Recommended for heavy duty work on rotary and custom-built presses.

AVAILABLE IN SHEETS OR ROLLS

13A (Medium)	13C (Medium)	10E (Large)
15A (Fine)	15C (Fine)	13E (Medium)
	17C (Extra Fine)	

"SPHEREKOTE" IDLER ROLLER COVER

7C (Special Bead) Available in rolls 1½" x 120' for offset prevention.

3-M
MINNESOTA MINING AND MANUFACTURING CO.
GENERAL OFFICES, SAINT PAUL 6, MINN.
BRANCHES IN PRINCIPAL CITIES

SPHEREKOTE
BRAND
TYMPAN PAPER
for

NATIONAL TAG AND LABEL
CORPORATION

57-63 ROGERS STREET
CAMBRIDGE 42, MASS.

December 18, 1944

Minnesota Mining & Mfg. Co.
Spherekote Div.
155 Sixth Ave.
New York, N. Y.

Attn: Mr. E. J. Kane

Gentlemen:

We are very pleased with SPHEREKOTE and feel that you may wish to use the following statement in your advertising:

We believe SPHEREKOTE is as modern as tomorrow. We are constantly seeking the latest developments in printing and SPHEREKOTE ranks among the foremost. Heavy solids and back-up work on our web-fed machines have been simplified by SPHEREKOTE. Our tag machine operators report once-a-day wash-up is all that is necessary wherever SPHEREKOTE is used. We are all for it!

Very truly yours,
NATIONAL TAG & LABEL CORP.
Frank K. Darrell
Frank K. Darrell

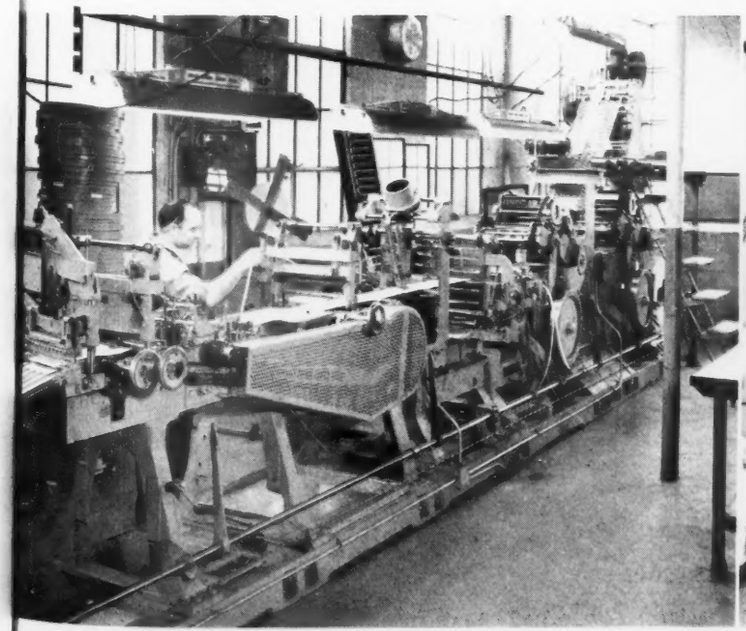
FKD/ii

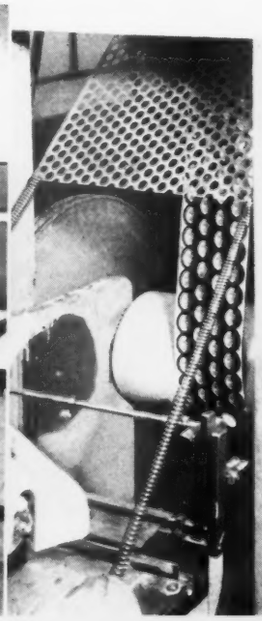
QUICK BACKUP... CLEANER PRINTING

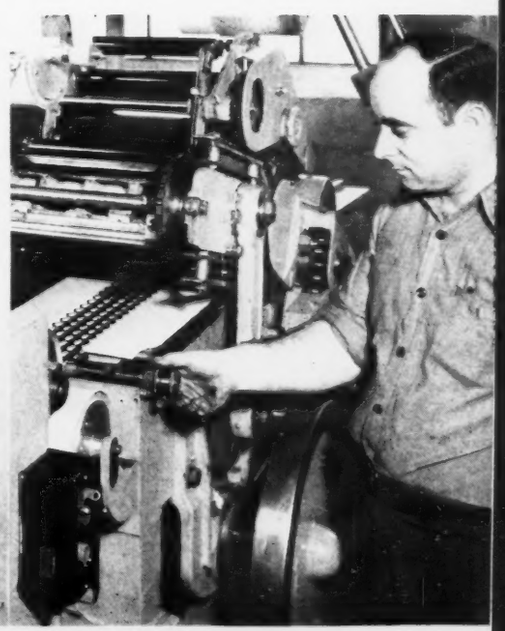
When the demand is for quick backup of work and turn forms—the answer is "Spherekote" Tympan Paper. There is no time lost waiting for ink to firmly set before turning—"Spherekote's" glass-beaded surface does not pick up ink the way ordinary top sheets do. Its secret in eliminating offsetting, thereby turning out a cleaner printed result, lies in its unique construction . . . any ink picked up deposits in the depressions between the tiny glass beads and does not mass on the surface.

As the National Tag and Label Corporation attest, "Heavy solids and backup work . . . have been simplified by 'Spherekote'." The illustrations show "Spherekote" in use as a tympan cover and to cover the idler rollers on a New Era press.

For Quick Backup and Cleaner Printing—Use "SPHEREKOTE"



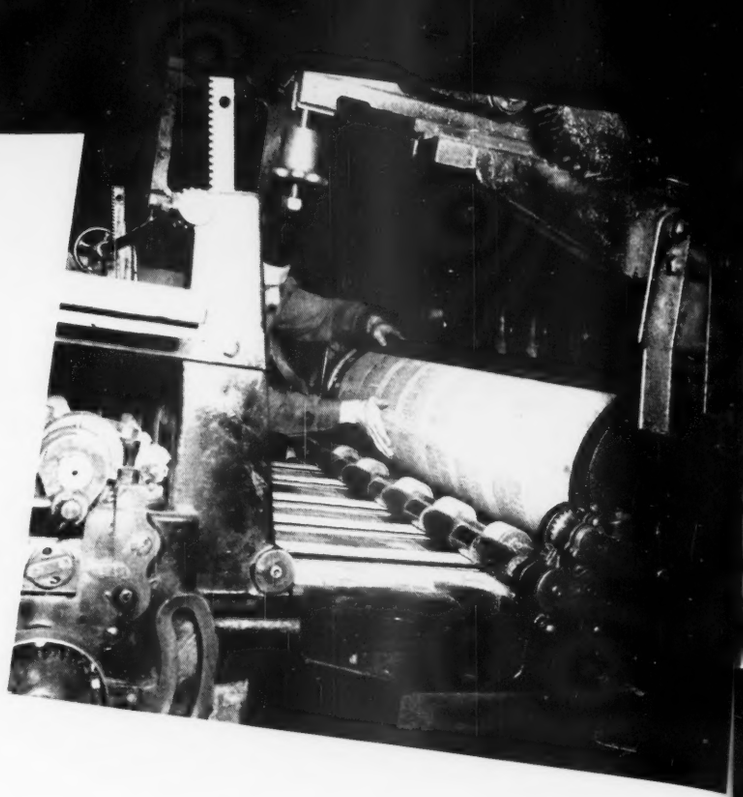




3-M
MINNESOTA MINING AND MANUFACTURING CO.
GENERAL OFFICES: SAINT PAUL 6, MINN.
BRANCHES IN PRINCIPAL CITIES

SPHEREKOTE
BRAND
TYMPAN PAPER
for

MORE IPC*. . .
FEWER STOPS

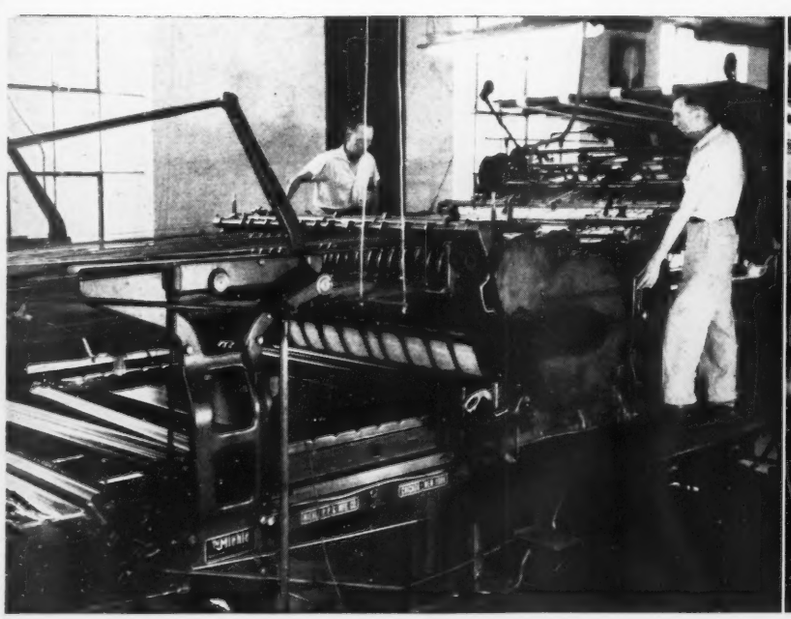


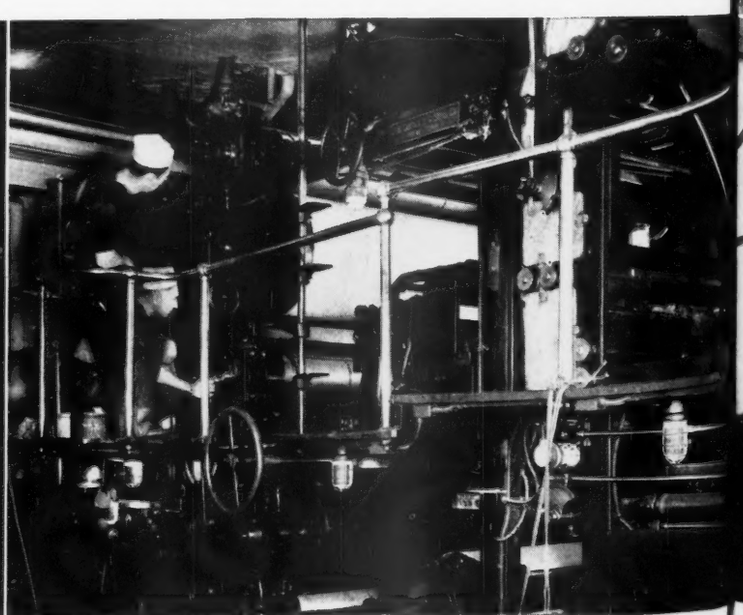
* *Impressions Per Cover*

"Spherekote" has the ability to "take it." Runs of a million and a half have been reported on one sheet. "Spherekote's" hard, smooth surface remains uniform throughout long press runs without loss of quality.

"Spherekote" requires fewer wash-ups and eliminates many costly stops for cleanup and cover change-over. When, after thousands of impressions, "Spherekote" is washed up—it is a simple matter. Non-absorbent, "Spherekote" cleans as easily as window glass—a soft cloth, solvent and a minimum of rubbing leaves the surface as good as new.

For More Impressions with Fewer Stops—Use "SPHEREKOTE"





SPHEREKOTE
BRAND
TYMPAN PAPER
for

LESS OFFSET...
LESS INK BUILD-UP

Transfer of ink from draw sheet to paper is the common enemy of all printers. Only a minimum of ink can gather on "Spherekote's" smooth, glass-beaded surface and the build-up of ink and offset spray in greatly reduced.

Interrupted press runs for frequent tympan cleanup are costly and often result in loss of quality. Clean-up time is brought to a minimum with "Spherekote" and forms print better . . . longer.

For Less Offset, Less Ink Build-up
—Use "SPHEREKOTE"

THE FAYETTE TRIBUNE

"IN FAYETTE COUNTY, NEARLY EVERYBODY READS THE TRIBUNE"

ESTABLISHED 1867 — MAIN STREET — Tuesdays ... Fridays

DUN HILL, WEST VIRGINIA

February 20, 1945

Mr. R. B. Ames
Spherekote Division
Minnesota Mining & Manufacturing Company
900 Fauquier Avenue
Saint Paul 6, Minn.

Dear Sir:

Answering your inquiry on our results with "Spherekote"--
just chalk up another enthusiastic customer!

We have had this Duplex flatbed press since 1937, and our constant enemy has been offset after the cylinders had passed over for the reverse impression. We had tried everything--even to putting on muslin draw tympans each time we run. Nothing helped. That is nothing until we tried "Spherekote." Our results since then have been satisfactory in every way and we are completely converted.

The first "Spherekote" tympan is still on the press and has about 65,000 impressions--still no offset.

Enter our order for a standard sized roll of 150 that will give us the same width as before---I believe the sample was 38" stock.

Bill us on open account and your invoice will be paid promptly.

Very truly yours,

THE FAYETTE TRIBUNE,
Fayette Newspapers, Inc.
Lou R. Johnson
Office Manager

3-M

MINNESOTA MINING AND MANUFACTURING CO.
GENERAL OFFICES: SAINT PAUL 6, MINN.
BRANCHES IN PRINCIPAL CITIES

The Proof IS IN THE PRINTED RESUL

Here is craftsmanship in a draw sheet—"Spherekote" Tympan Paper. Designed originally for use on perfector and rotary presses, "Spherekote" is now accepted for use on every type of letterpress equipment.

True and accurate reproduction of half tones and type, and the ability to perform the special jobs it is designed to do, make "Spherekote" Tympan Paper the outstanding top sheet for the wide variety of printing forms.

For Better Printing Impressions
—Use "SPHEREKOTE"

PLATES COURTESY GILBERT PAPER CO., MENASHA, WIS.

SPHEREKOTE
BRAND

TYMPAN PAPER
for

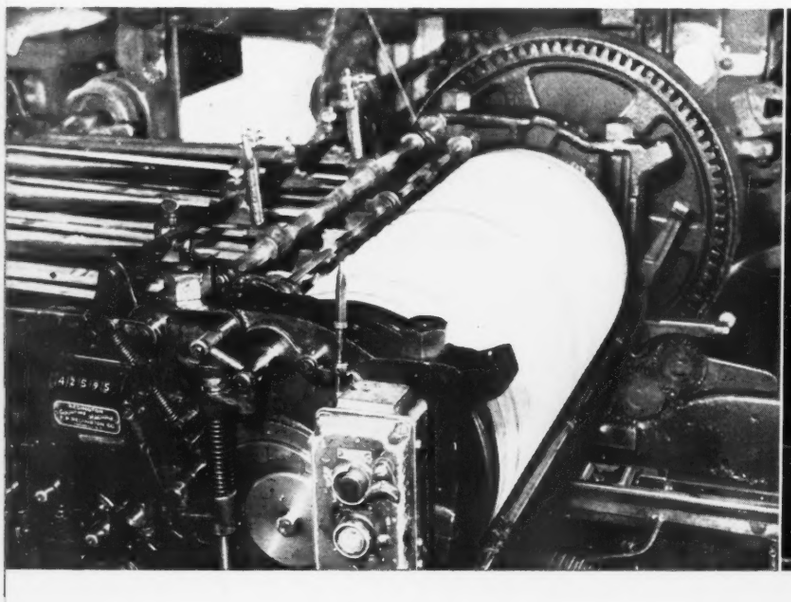
PERFORATING

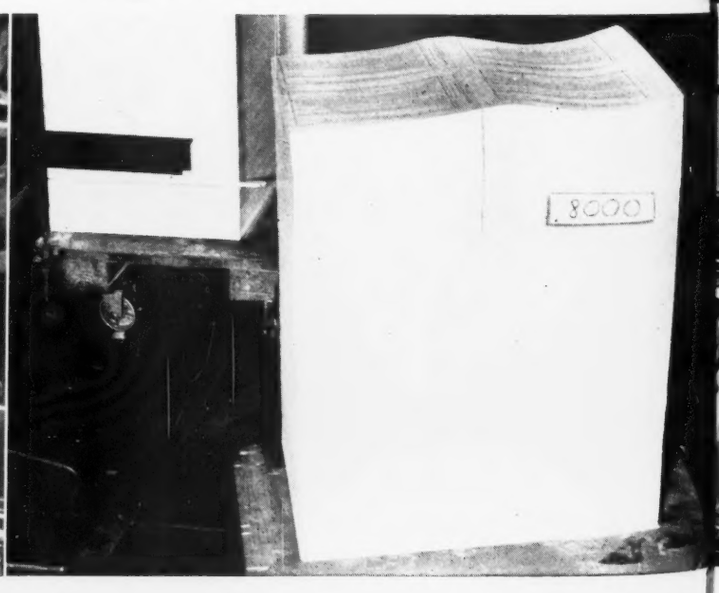
These advantages make "Spherekote" the outstanding top sheet for press perforating work:

1. No lump gathers under "Spherekote" which often results in torn packings and smashed forms.
2. Strength and durability result in longer, trouble-free runs. (Runs of 300,000 have been made on a single top sheet.)
3. Perforated sheets stack flatter on the pile, resulting in fewer stops for unloading.
4. The elimination of shims under "Spherekote" allows perforating rules to fit right up to half tones or type.

For Perforating — Use "SPHEREKOTE"

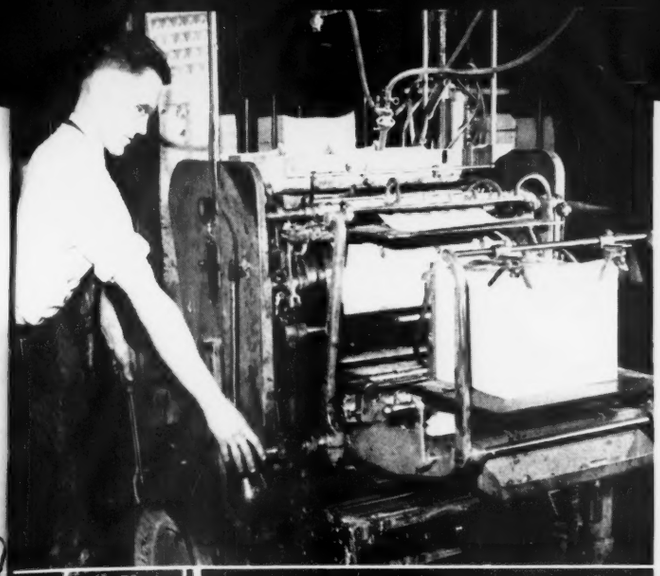
The AMERICAN PRESSMAN
JANUARY • NINETEEN HUNDRED
FROM THE AMERICAN PRESSMAN . . . .
FORM PERFORATING WITH SPECIAL TYMPAN
This is in regard to an article I read in The American Pressman about perforating. I've tried about everything that I know of, including binders' tape. I Scotch tape, steel and brass strips. I sometimes use gauzed iron and offset plates on the platens under the top sheet, and then tried the full plate on the B Kelly, they work sweet but they result in trouble with the form.
I've inquired from the Minnesota Mining and Manufacturing Co. of St. Paul, Minnesota, about their "Spherekote" top sheets, and later sent me two sample top sheets, and later sent me two more, which I used on the B Kelly.
We print quite a few factors forms, on bond paper, tag board and blanks requiring perforating, and believe me they must perforate.
In using this "Spherekote" cover, the perforating can beautifully, the glass beads in this cover allows no ink or lint to gather, causing a small hill to form for the strs, or fingers to dig into and tear packing off, and probably mash the form.
I started my makeready with the regular top manila to get position and to be sure all perforators were same height. After finishing makeready, placed "Spherekote" on, taking top manila and one sheet off, allowing for the cover's thickness. After running a few hundred sheets, tried the perforation and added a folio (.002) to same, and ran the complete job off without any trouble, even with the perforation across cylinder.
Here are the jobs I ran so far on the B Kelly with this top sheet: 9,000 22x11, 20-lb. bond, 4 down, 1 across cylinder perforations; 6,000, 22x17, 20-lb. bond, 6 down perforations; 25,000, 12⅛ x 18, 2-ply index, 4 across cylinder perforations; 10,000, 21x9, 2-ply index, 2 across cylinder perforation; 12⅛ x 18, 1-ply tag board, 2 across cylinder perforation. These last two jobs were run with the same top sheet. Two of these jobs would not have allowed for any of steel strips in the ordinary way of perforating with a manila top. In fact, I had been running it with an offset plate as top sheet on Kelly. However, around the grippers and under clamps, resetting, bending it and drawing tight around bar with heavy twine. I cut through this plate so later I tried galvanized iron, but this was too hard for the linotype form — gradually wearing it down.
I believe this is the answer to complicated perforating jobs for the Pressent at least! where it doesn't accumulate any ink or lint from the paper to cause a lump, and the paper to sheets lie much flatter on the pile. I thought I would inform you on this as I did not see any mention of this in The American Pressman.
— Walter E. Kuhlman.





SPHEREKOTE
BRAND
TYMPAN PAPER
for

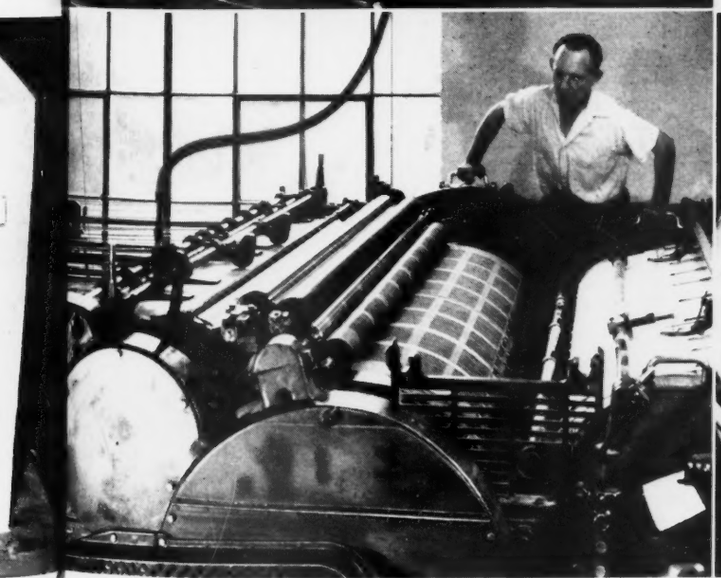
STATIC ELIMINATION... Printing Lightweights and Gummed Stocks



"Spherekote" has been found to reduce static electricity to a marked degree. On some equipment, static conditions have been eliminated entirely, and it has been definitely minimized on others.

Lightweight papers and gummed stocks strip clean from the packing when "Spherekote" is used and sticking to the cylinder and piling-up is eliminated. Here, again, "Spherekote" has proven its ability to maintain steady press runs, free from heretofore common troubles.

To Reduce Static, Print Lightweights and Gummed Stock — Use "SPHEREKOTE"



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MINNESOTA MINING AND MANUFACTURING CO.
GENERAL OFFICES SAINT PAUL 6, MINN.
BRANCHES IN PRINCIPAL CITIES

PRESSROOM RECOMMENDATIONS

JOB PRESSES

PERFORATING—Perforate directly on "Spherekote," either horizontal or around the cylinder—no steel bands or shims are necessary—type may be set close to line of perforation. Runs of 300,000 have been made on one sheet.

QUICK BACKUPS—No waiting for ink to dry—back up immediately without offset.

STATIC—Note reduction of static—run lightweight jobs with no sticking to cylinder.

GUMMED STOCKS—Point contact of glass spheres prevents stock from sticking to top sheet even in very humid weather.

EASY WASH-UP—May be washed as easily as glass window—use light oil and benzine or equivalent.

LESS INK BUILD-UP—"Spherekote" is slow to pick off ink or particles from offset spray. Very few wash-ups required.

LONG LIFE—Run many type forms on the same sheet of "Spherekote."

FLATBEDS, PERFECTORS AND ROTARY PRESSES

PREVENT OFFSET—Use "Spherekote" on second impression cylinder—ink settles between glass beads—requires few wash-ups—washing will not fuzz or impair printing surface.

OIL WIPES—"Spherekote" cleans easily using less oil—smooth round glass beads reduce wear on oil wipes. "Spherekote" will not fuzz under wipe—clean, hard surface means quality printing right up to the end of the run.

LONG LIFE—No stops for tympan changes—runs of a million and a half have been reported on one sheet without loss of quality.

OIL RESISTANT—"Spherekote's" laminated construction prevents oil from seeping into make-ready—no additional protective sheet required.

QUALITY PRINTING—The hard, smooth surface of "Spherekote" gives cleaner, sharper printing.

Prevent Offset

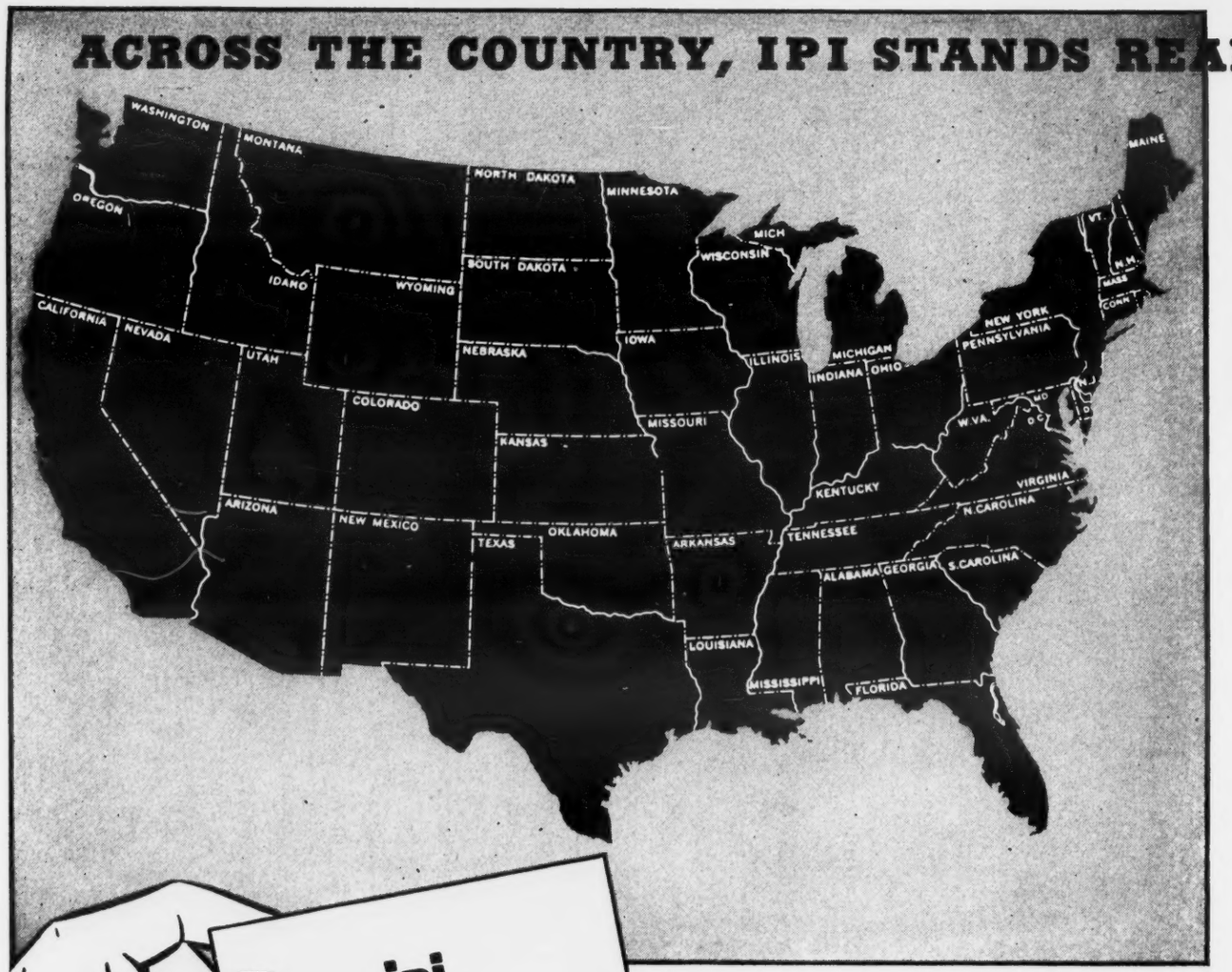
"SPHEREKOTE" IDLER ROLLER COVER

"Spherekote" is made in rolls 1½" x 120' to wind around idler rollers to prevent offset. The strip is wound spirally around the rollers and anchored at each end. Easy to clean or replace, "Spherekote" eliminates the old "nutmeg graters" which have always presented difficulty to the pressman.

SPHEREKOTE TYMPAN PAPER
BRAND
From Kluges to the largest web-feds, the use of "Spherekote" Tympan Paper is effecting savings in time and definitely contributing to general pressroom efficiency. For better printing . . . longer wear . . . less offset . . . increased production — "Spherekote" Tympan Paper offers printers the ultimate in a draw sheet.
3-M
MINNESOTA MINING AND MANUFACTURING CO.
GENERAL OFFICES: SAINT PAUL 6, MINN.
BRANCHES IN PRINCIPAL CITIES

MINNESOTA MINING & MFG. CO.
THE
3-M
COMPANY
- ST. PAUL, MINN. -

ACROSS THE COUNTRY, IPI STANDS READY TO SERVE YOU



The most complete, nation-wide ink and color service is provided by International Printing Ink Division of Interchemical Corporation. Its extensive organization assures you of prompt and reliable service wherever you may be located. For prompt service on ink and colors, call or write the IPI branch nearest to you. Customers say, "It pays to keep in touch with IPI." International Printing Ink Division of Interchemical Corporation, 350 Fifth Avenue, New York 1, N. Y.

So that you will know where to find us in a hurry, here is a list showing the location, address, and telephone number of IPI's branches and factories.

● THESE ARE OUR BRANCHES

Atlanta 3, Georgia
215 Central Avenue
TEL. WALNUT 8265

Baltimore 2, Maryland
720 E. Pratt Street
TEL. CALVERT 5720

Battle Creek 101, Michigan
Merrill Park, P. O. Box 199
TEL. BATTLE CREEK 8177

Buffalo 5, New York
559 Ellicott Street
TEL. CLEVELAND 8240

Cambridge 39, Mass.
175 Albany Street
TEL. ELLIOT 1720

Chicago 5, Illinois
161 W. Harrison Street
TEL. WABASH 3113

Chicago 32, Illinois
(Aniline Department)
3030 West 51st Street
TEL. REPUBLIC 7400

Cincinnati 2, Ohio
417 East 7th Street
TEL. PARKWAY 4700

Cleveland 14, Ohio
113 St. Clair Avenue, N. E.
TEL. MAIN 6828

Dallas 1, Texas
1907 Commerce Street
TEL. RIVERSIDE 6874

Denver 2, Colorado*
1824 Curtis Street
TEL. MAIN 5882

Detroit 26, Michigan
222 W. Larned Street
TEL. RANDOLPH 7818

Indianapolis, Indiana
110 East 9th Street
TEL. RILEY 3458

Kalamazoo 3, Michigan
315 E. Michigan Avenue
TEL. KALAMAZOO 6416

Kansas City 6, Missouri
707 Central Street
TEL. VICTOR 2707

Los Angeles 15, California*
1220 Maple Avenue
TEL. PROSPECT 4496

Milwaukee 2, Wisconsin
431 N. Milwaukee Street
TEL. DALY 2138

Minneapolis 15, Minnesota
729 South 4th Street
TEL. GENEVA 3639

Nashville 3, Tennessee
417 Commerce Street
TEL. NASHVILLE 6-7871

New Orleans 13, Louisiana
711-13 St. Charles Street
TEL. RAYMOND 3971

New York 19, New York
636 Eleventh Avenue
TEL. CIRCLE 6-7900

Philadelphia 23, Pa.
1061 Germantown Avenue
TEL. MARKET 2428

Portland 9, Oregon*
537 N. W. 11th Avenue
TEL. BROADWAY 3383

Richmond 3, Virginia
11 N. Governor Street
TEL. RICHMOND 3-5930

Rochester 4, New York
14 Franklin Street
TEL. STONE 4772

St. Louis 3, Missouri
1909 Locust Street
TEL. CENTRAL 3736

San Francisco 3, California*
915 Howard Street
TEL. GARFIELD 2020

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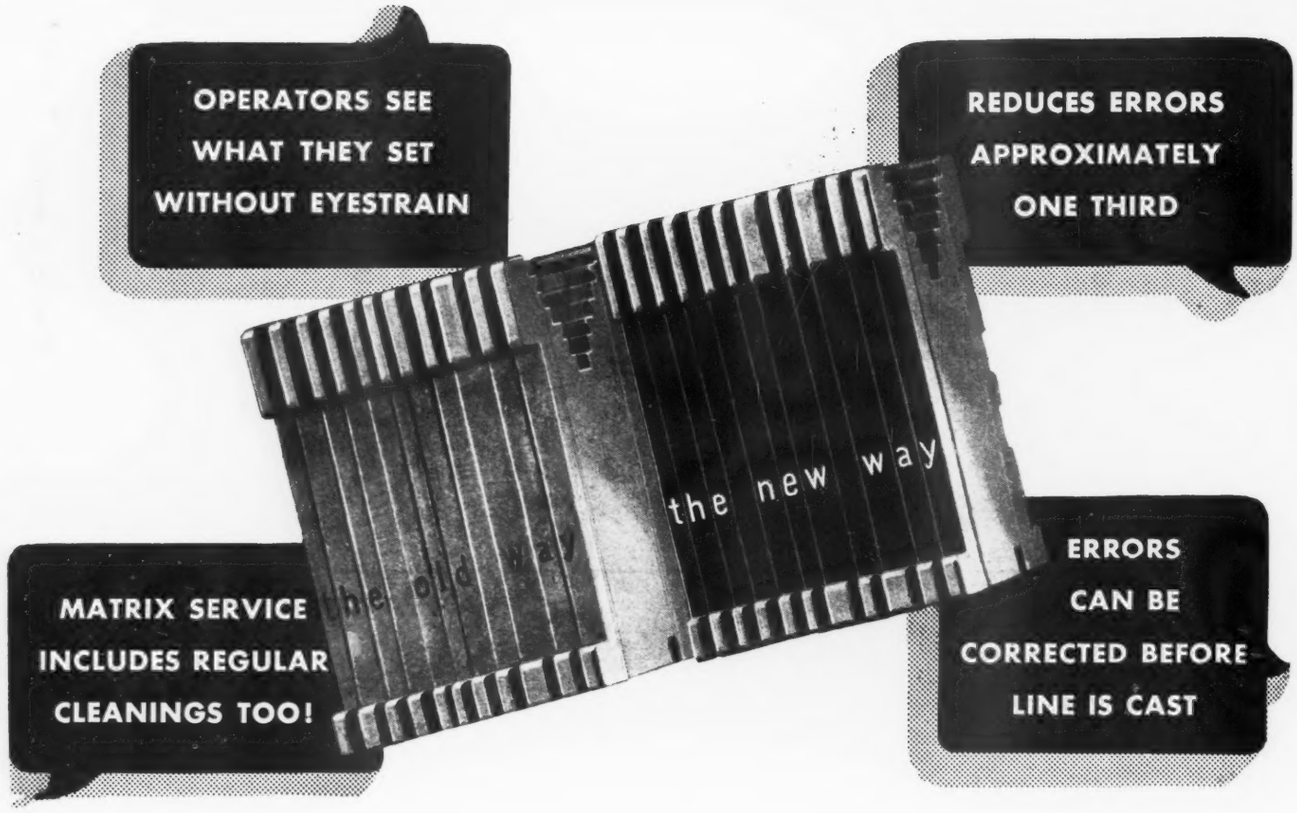
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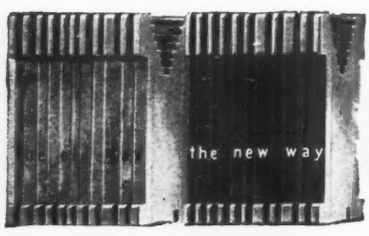

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Production Manager, Printing Department,
Eli Lilly Co., Indianapolis, Ind.

International Craftsman's Association Has Robust Growth

PRESIDENT H. Guy Bradley, the International Officers and the entire membership of the International Association of Printing House Craftsmen are to be congratulated upon the present flourishing state of the Association. At last report, the membership consisted of 8700 printing executives and those persons interested in the function of this popular technical society. There are now 71 Clubs scattered over the United States, Canada, Cuba, Australia and South Africa.

Thus it will be seen that in spite of abnormal conditions brought about by the war and the turbulent reconversion period, the Craftsman's movement holds out something of high utility to printing executives. This probably is the highest tribute which could be paid to any organization.

A test of the calibre of the International's officers is that its work is carried out on a purely voluntary basis. The officers serve without financial remuneration. The business of the Association has become so heavy that the convention this year will consider the San Francisco proposal whereby a full-time salaried Executive Secretary may be employed.

The 1946 convention being held in Montreal, Canada, September 9-11, it appears, will be one of the outstanding Craftsmen's convention of all time. Canada supports five local Clubs—Montreal, Ottawa, Toronto, Vancouver and Winnipeg. Canadian Craftsmen, traditionally, are noted for their hospitality.

On this and succeeding pages we print portraits and (in new cases) short Miniature Biographies of the International Officers. *Printing Equipment Engineer* believes all Craftsmen should know as much as possible about their International Officers.

First Vice President
W. H. (BUD) GRIFFIN
President of Griffin Bros.,
San Francisco, Calif.

Second Vice President
A. GORDON RUITER
Mechanical Superintendent,
Forbes Litho Co., Boston

Third Vice President
GRADIE OAKES
President, Process Color Plate Co.
Chicago, Ill.

Publications Commission Chairman
MICHAEL IVERS
Chicago

Research Commission Chairman
HERMAN A. SLATER
Production Manager, Chas. E. Brown
Printing Co., Kansas City, Mo.

Representative-at-Large
JOHN L. REAY
Executive Vice President, Braden-Sutphin
Ink Co., Cleveland, Ohio

Miniature Biographies

FROM time to time. *Printing Equipment Engineer* has presented to its readers Miniature Biographies of officials of the International Association of Printing House Craftsmen. Among the newcomers since publication of the last biographic sketches are Edward T. Samuel, International Treasurer; J. Homer Winkler, Educational Commission Chairman; Michael Ivers, Publications Commission Chairman; John L. Reay, International Representative-at-Large; Neil B. Powter and R. Lorne Cummings, Co-Chairmen of the 1946 International Convention in Montreal.

Many Craftsmen do not have an opportunity of becoming intimately acquainted with their International Officers. They do, however, like to feel they know them personally. Thus the bond between them is strengthened—all of which makes for a better International.

EDWARD T. SAMUEL
International Treasurer

EDWARD T. SAMUEL really is a printing production executive "in reverse". That is, he did not start his career as a lowly printer's devil. Like many other boys he began earning his livelihood as a newsboy, milkman and Postal Telegraph delivery boy. He worked for the Willard Storage Battery people for three years and then for the Ferro Machine & Foundry Co., exactly one year. In these various capacities he

Secretary
HERBERT THRELFALL
President, John F. Greene Co.,
Providence, R. I.

Treasurer
EDWARD T. SAMUEL
Superintendent, Hersh Printing Co.,
Cleveland, Ohio

Educational Committee Chairman
J. HOMER WINKLER
Asst. Supervisor, Graphic Arts Div.
Battelle Memorial Institute,
Columbus, Ohio

1946 Convention Co-Chairman
NEIL B. POWTER
Sales Promotion Manager,
Howard Smith Paper Mills, Ltd.,
Montreal, Can.

1946 Convention Co-Chairman
R. LORNE CUMMINGS
Sales Promotion Manager,
Standard Paper Box, Ltd.,
Montreal, Can.

just didn't seem to fit. Meanwhile he took a high school printing course, attended Cleveland Law School and took a course in business training. Then he became associated with the old Corday & Gross Co., which connection endured for 15 years. With Corday & Gross, he started as a bookkeeper, became a cost clerk, and drifted gradually into estimating and production supervision.

During his 15-year connection with Corday & Gross, Ed saved his money (with the help of his better half, of course). He then started in business for himself. His plant was named Paragon Press. After 4½ years of proprietor experience he sold the plant. In 1937 he became general superintendent for A. S. Gilman, Inc., general commercial printers.

In 1946 he became associated as part owner of the Hersh Printing Co., with which company he now functions as superintendent.

At heart Ed says he is a farmer—in fact, that's his hobby. He and his brother spend their extra time raising vegetables and such on land east of Cleveland. He is married and has two daughters and a son. He is a past president and secretary of the Cleveland Craftsmen's Club. He was elected International Treasurer at the 1945 International business meeting at Columbus.

J. HOMER WINKLER
Educational Commission Chairman

ONE of the outstanding personalities of the entire Craftsman movement is J. Homer Winkler, Chairman of the Educational Commission. His is the responsibility this year in organizing the 1946 Montreal convention educational program.

Mr. Winkler is Assistant Supervisor, Graphic Arts Div., Battelle Memorial Institute, Columbus, O. His major activity is to further scientific research in the Graphic Arts.

He was graduated from George Washington university in 1925 with the degree of Bachelor of Science in Chemical Engineering. Prior to and following his graduation he was a research associate for the International Association of Electrotypers at the National Bureau of Standards in Washington, D. C. In 1928 he became associated with the Buffalo Electrotyping & Engraving Co., Buffalo, N. Y., and in 1929 became assistant manager of the Ace Electrotype Co., Cleveland.

Mr. Winkler is secretary-treasurer of Printing Plates Research, Inc., a national group of electrotypers who have conducted a research program for a number of years. Prominent among the technical accomplishments which this group fostered is the plastic plate method for molding electrotypes. He is also a fellow of the American Association for the Advancement of Science and a member of the Electrochemical Society.

Mr. Winkler is married and has a son and a daughter. He is an honorary member of the Cleveland Craftsmen's club. He has spoken before many Graphic

Arts groups and has contributed many articles to the professional and trade press.

MICHAEL IVERS

Publications Commission Chairman

QUITE often, valuable members of the International official family distinguish themselves in their duties merely by their capacity for work and the observance of schedules. Such a Craftsman is Michael Ivers, chairman of the Publications Commission. He is editor of *Share Your Knowledge Review*. Mr. Ivers is in charge of production and purchasing for Max Sterns Sons, 801 So. Wells St., Chicago. Previous to that time (about the first of the year) he was serving *Esquire Magazine* in like capacity. Other firms with which he has been associated are Rosenow Co. and Twentieth Century Press in Chicago. His schooling is identified with Northwestern University. He is financial secretary of the Chicago Craftsmen's club. His hobbies are golf, bowling and collecting stamps.

JOHN L. REAY

Representative-at-large

ENERGETIC and affable, John L. Reay, President Bradley's appointee as Representative-at-Large, is Executive Vice President and Sales Manager for the Braden-Sutphin Ink Co., Cleveland. We don't know whether he merited appointment as Representative-at-Large because of his pleasant personality or because of his ability to visit many sections of the country on long-range jaunts. We suspect it's because of both reasons that he fits happily into the job.

His visits to various local clubs have been appreciated inasmuch as he is an easy speaker and goes out of his way to get things done.

Distinctly, Mr. Reay says he enjoys sales work and there isn't any other activity which would have preference. He was graduated from Newton High School, Newton, Mass.

His career in the industry started with the Queen City Printing Ink Co. (which is now a subsidiary of IPI). He was with that firm for 11 years, the latter two of which he served as Cleveland branch manager. Earlier in his career he was a color matcher and ink maker.

He is a past president of the Columbus (O.) Club. It is a matter of just recent history that he built that club up from a dwindling membership to one where most all Craftsmen have either heard about its enthusiastic activities or follow them with interest.

We asked him about his hobbies. Said he: "I have six—my family, selling, the Craftsmen's club, football, baseball and hockey." All of which, we add, should give him a full life.

NEIL B. POWTER

1946 Convention Co-Chairman

NEIL B. POWTER is one of the two co-chairmen managing the 1946 Craftsmen's convention to be held in Montreal, Que., on September 9, 10 and 11. Mr. Powter is well known in the United States, he having attended school and worked here for a time. He is a Canadian product, having been born in Montreal.

He entered the printing business in 1922 as a Monotype operator. In the fall of 1922 he entered Carnegie Tech. (Pittsburgh), taking special courses in printing and advertising. After completing his educational work at Carnegie he worked in the sales promotion department of a paper wholesaler in Cleveland. He was also employed for a time in the nationally known plant of Edwin H. Stuart, Inc., Pittsburgh advertising typographers.

In 1922 he joined the staff of Howard Smith Paper Mills, Ltd., and worked in that firm's Toronto office until 1932. He was assistant sales promotion manager of Howard Smith from 1932 to 1937, and sales promotion manager from 1937 to the present time. His title includes three companies—Howard Smith Paper Mills, Ltd., Canada Paper Co., and Alliance Paper Mills, Ltd. During the war he was on loan to the government as industrial relations officer of Allied War Supplies Corporation.

Mr. Powter's auxiliary activities cause him to lead a very active life. He is vice president of the Association of Canadian Advertisers; Canadian vice president of the Direct Mail Advertising association; director of the Montreal Craftsmen's club; member of the Technical Advertisers association of Montreal, and member of the Montreal Advertising and Sales Executives club.

He is an excellent speaker and has appeared before many Craftsmen's clubs and has spoken to meetings of many other organizations. His mimricry is something to behold — his English, Scotch, Irish, French impersonations usually accompanied by ludicrous situations bring appreciative chuckles from the audience.

R. LORNE CUMMINGS

1946 Convention Co-Chairman

R. LORNE CUMMINGS is one of the two 1946 Montreal Craftsmen's convention co-chairman. Like his associate, he is Canadian born. This event happened in Sherbrooke, Que. He started work in the printing business as messenger and handy boy in the bindery and pressroom of the Mercury Press. After a time he associated himself with Robert Reford Co., Ltd., steamship agents, successively as office boy, junior clerk, selling steamship travel in the passenger traffic department, and then as assistant to branch manager. The next two years found him acting as assistant buyer in Toronto's T. Eaton Co., Ltd.

In 1931 he joined Standard Paper Box, Ltd., and organized the first cost estimating system for the folding box division. In 1937 he was made superintendent (manufacturing and printing) folding box division. In April 1945 he was placed in charge of product and development work. In December 1945 he was appointed sales promotion manager, which position he holds at the present time.

Mr. Cummings has been an active member of the Montreal Craftsmen's club since 1939. He was appointed to the Montreal club's board of governors in 1940. He was elected vice president in 1941 and became president in 1942.

His hobbies are photography, fishing and golf.

Masterlith Ideal Bulletin

Ideal Roller & Mfg. Co.'s latest roller bulletin is devoted to a presentation of the qualities of Masterlith lithographic rollers. Manufacturer states these rollers are made by a process which provides a dense outer surface that cannot absorb linseed-base inks. In addition, it is suggested that someone in the plant be delegated to be responsible for that firm's roller supply. Instructions for the cleaning and care of these rollers are given in detail. Copies of the bulletin may be obtained from Ideal direct or through *Printing Equipment Engineer*.

Resumes Production

The twenty-week CIO strike which, since March 1, has kept closed the plant and offices of the Mergenthaler Linotype Co., in Brooklyn, has been settled. It is stated by a Linotype executive that manufacturing operations were resumed Monday, July 29, office functions having been partially maintained throughout the strike.

"Our most pressing problem," said a Linotype official, "is that of service to the industry which has been seriously handicapped by lack of parts and matrices. Every effort will be exerted to remedy this situation as quickly as possible."

Certified Elects Officers

The Certified Dry Mat Corp., at a recent board of directors' meeting, elected Winthrop L. Sheedy as president and a director of the corporation following the resignation of Mrs. Elsa Kubler as president.

Mr. Sheedy has been associated with the company since it was founded and has managed the Certified mill during that period.

Frank M. Tighe, vice president in charge of sales, was elected executive vice president. Paul Runge will continue in the office of vice president and treasurer, with George T. Kempter as secretary and Joseph D. Jerome as assistant treasurer.

Strictly Business

By HELM SPINK*

I GOT into the printing business by accident. At the age of twelve I acquired a hand press and several fonts of pied type—enough of it to discourage the usual boyish enthusiasm over a new toy. That was twenty-five years ago, and no blonde has since lured me away from printers' ink for more than two weeks.

I can't explain it rationally. Printing is not glamorous work. It's dirty work, tedious, back-breaking, nerve-wracking. Despite your best efforts, you make mistakes. You check galley proofs, page proofs, press proofs, and discover a misspelled word after the book is bound. You line up your pages almost with a micrometer and find when the sheets are trimmed that one form is an eighth of an inch higher than the others.

Don't dismiss that eighth of an inch with a shrug. To a good printer a sixteenth of an inch out of register is no less than a penitentiary offense Maybe only one word in a thousand is misspelled, maybe one in ten thousand, but no real printer can be proud of a job that's 99.99 percent perfect.

I mean that. A real printer, like any other artist, is a perfectionist. Of course he doesn't achieve perfection, but he's always striving for it. Once in a while he's really gratified by a page, a book, or an ad that is a work of art. It is sensually gratifying, like a painting or a song. Most of the time, however, he's disappointed. The product of his skill and care is almost but not quite right. Next time he means to have it absolutely right.

That's the real printer. Sometimes the term is applied in a complimentary sense to the proprietor of a printing establishment. I have even heard it said that a printer's primary aim was to make money. But the fact is that no real printer gives a damn about money. He is interested in adequate food, comfortable shoes, feminine charm, and good whisky—real, aged-in-the-wood straight bourbon, unsullied by neutral spirits. He wants some leisure to enjoy those essentials. He may even relish a drive in the country and a symphony concert. But his foremost interest (inexplicable though it be) is in type and its use.

Why rationalize this form of madness? It isn't intelligent; it's emotional. Typography isn't a science, to be stored in the mind; it's an art, to be absorbed into the blood stream. Obviously, some training is required to be a printer, but knowledge is not enough. The printer must have a taste for type—a feeling for the right type combinations, for arrangement, spacing, and shape.

To his dismay, he learns that buyers of printing are chiefly concerned with its cost. They want to know why their orders can't be delivered yesterday or why another paragraph shouldn't be inserted after the second. Probably the customer has bought printing before and has heard somewhere that type should be legible.

Of course. Type is a medium for transmitting a message. To say that it should be legible is like saying that a voice should be audible. It should also be expressive. Sometimes it should be gentle, sometimes strong, friendly, austere, young, old, excited, subdued, happy, grave. We naturally expect a voice to express all these qualities at appropriate times. Type should do likewise. It does, in the hands of an artist.

The true typographer, unquestionably, is an artist. Being an artist, he presumably is a sensitive person, capable of appreciating good art and recognizing bad. But the typographically ignorant customer doesn't seem to know that. He tells the printer that he wants a different type or a combination of faces that would curdle the ink.

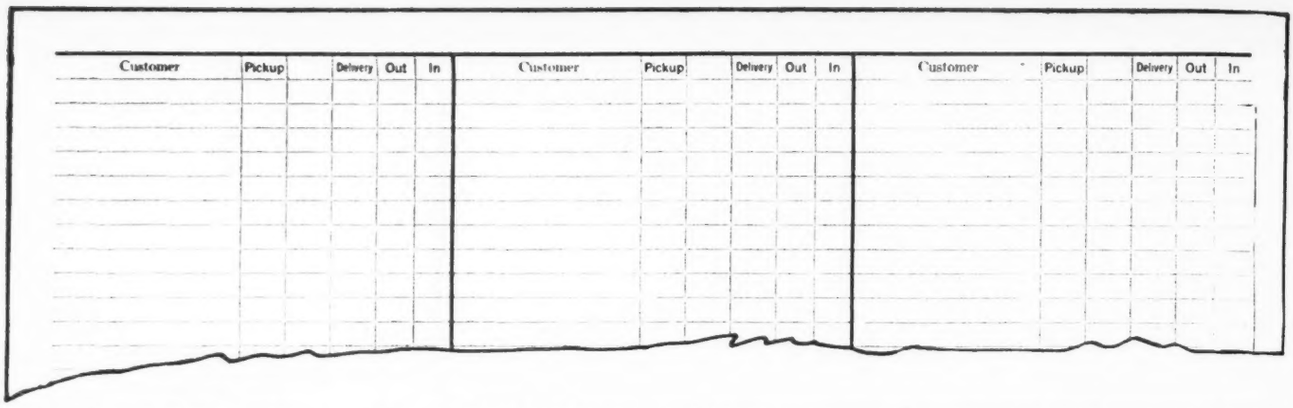
Well, in this imperfect world the customer is king. His taste may be atrocious, his whimsies may be mad, but the printer can't practice his art without food, clothing, bourbon, beer, and brunettes, so the customer gets what he orders. If half the type must be reset because the editor didn't edit, so be it. He's paying for it—he or the corporation that pays his salary. By comparison with the cost of customers' alterations, the national debt is a trifle.

Let's be reasonable. Why should an author or editor rewrite the copy after he sees the proof? Why should he even see a proof? Let him get his manuscript right and let us printers guarantee the transcription. We'll correct his misspelled words and bad grammar, unless the author insists on exposing his ignorance and carelessness—which, later, can always be blamed on the printer.

A good printer, a real printer, hates to reset type. The pseudo author or editor who asks him to do it (except for good reason) is beneath contempt. The resetting is an utter waste of skill and time, as futile as a speech in Congress.

To be sure, some rewriting is occasionally necessary — to correct actual errors, to eliminate "widow" lines, to avoid bad spacing and awkward breaks. These revisions the printer makes cheerfully. Unreasonable changes he makes with malice in his soul and murder in his heart.

*One of the William Feather Printing Co.'s typographic experts, Cleveland. Printed by permission of William Feather Printing Co.



Customer	Pickup		Delivery	Out	In	Customer	Pickup		Delivery	Out	In	Customer	Pickup		Delivery	Out	In

Fig. 1—Record of Pickups form used in plant of Monsen-Chicago, advertising typography and reproduction proof composition house. The original of this form is 15 in. wide by 10 in. deep. Name of customer is entered in the first column. The Pickup or Delivery columns are filled in to indicate the nature of the errand. Time at which messenger left the shop and the time at which he returned are indicated in the two right-hand columns.

Autobiography of a Job Ticket

What happens to a job when it is brought into advertising typography and reproduction proof establishment of Monsen-Chicago—Handling system explained—Customer dissatisfaction prevented

By A. G. FEGERT

"ORDINARILY," said the Monsen Job Ticket, "my kind of worker in a composing room is not 100 per cent efficient because the guys that put me into action do not send me out from the issuing desk with complete detailed instructions. When such a thing happens, there are a lot of high-priced compositors along my journey through a plant, who waste time trying to figure what they are to do next. That waste time means more overhead expense, or else chargeable time applied to a customer's job for which there was no productive work done.

"Such a thing should not be the case in a well-managed shop, and that is why I have been assigned, as a Job Ticket, to write my autobiography. My service record in the Monsen-Chicago typographic emporium, or whatever it is called, is one of efficiency from start to finish because it is a service in a plant where work is carefully planned, and where the whole organization works the plan. And in that plant, after I have finished my hitch, I am entitled to an honorable discharge, just like any G.I. After that, I am only called upon to report back at headquarters if and when a question arises in the future about my service record."

The *Autobiography of the Job Ticket* might be continued with the remark that in shops where a job ticket is sent on its important mission through a plant with incomplete instructions, the salesman on the job, or the clerk in the office, blameable for such inadequate written instructions, is doing both his employer, and the customer, a disservice. Besides, such carelessness will cause some shop men to indulge in language which they never learned in Sunday School.

The management of Monsen-Chicago courteously complied with my request for specific information about how a Job Ticket travels through the plant from the start to completion of the various operations called for on the face of the ticket.

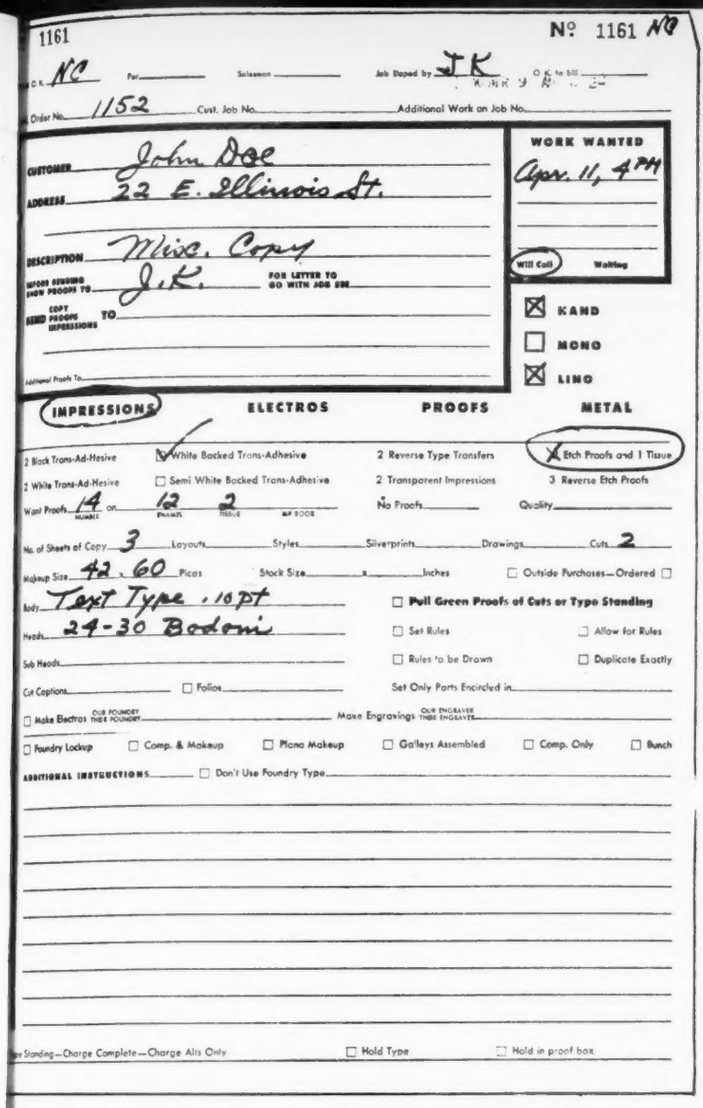
To begin with, the Monsen-Chicago organization is in the business of setting type for advertising agencies, lithographers, and for other customers, most of whom require etched proofs to be reproduced by photographic processes, or locked-up forms which are sent to the electrotyper for plates. Only in a few cases are type pages sent to customers' plants to be printed from type, and in fewer cases are galley forms sent to printers to be made up in their plants.

Readers will recall that a six-page feature article about the layout of Monsen's new plant was run in the April 1945 issue of this publication. In that article was described the Monsen-Chicago plant, and the manner in which it was built during the war because of the high priority which the work of the plant then justified.

Assume, for purposes of this article that a job originates in the office of John Doe, a valued customer of the Monsen organization. Mr. Doe's advertising manager telephones to the Monsen office that he has a job to be done, and he wants copy and cuts picked up. Whether the copy is picked up by a salesman, or by a messenger, of the firm is of no special interest in this story of the Job Ticket.

Following the arrival of the copy and cuts at the receiving desk on the second floor of the plant, Job Ticket No. 1161 is assigned to it. Being for a regular customer with OK credit, the receiving clerk marks the credit OK. If it were for a new customer, the job would not become activated until after the credit had been OKd by one of the authorized executives of the organization.

Following the issuance of the job ticket (See Fig. 2), an envelope 9½ in. by 12½ in., on the face of which appears name and address of customer, character of job and other data, a record is made in the job register—a book containing a record in consecutive numerical order of all job tickets which have been activated. With it a white "tickler" card (See Fig. 3) made out by the receiving clerk, bearing the job number. All of the data are sent



1161 Nº 1161 NC

O.K. NC For Salesman Job Doped by JK O.K. to bill

Order No. 1152 Cust. Job No. Additional Work on Job No.

CUSTOMER John Doe
ADDRESS 22 E. Illinois St.
DESCRIPTION Misc. Copy
UPON SENDING PROOFS TO J.K. FOR LETTER TO GO WITH JOB SEE
COPY AND PROOFS TO
Additional Proofs To

WORK WANTED Apr. 11, 4 PM
Will Call Waiting

☒ KAND ☐ MONO ☒ LINO

IMPRESSIONS ELECTROS PROOFS METAL

2 Black Trans-Ad-Hesive ☑ White Backed Trans-Adhesive 2 Reverse Type Transfers ☒ Etch Proofs and 1 Tissue
2 White Trans-Ad-Hesive ☐ Semi White Backed Trans-Adhesive 2 Transparent Impressions 3 Reverse Etch Proofs
Want Proofs 14 (number) on 12 (pages) 2 (tissue) AP BOOK No Proofs Quality

No. of Sheets of Copy 3 Layouts Styles Silverprints Drawings Cuts 2
Makeup Size 42 . 60 Picas Stock Size x Inches ☐ Outside Purchases—Ordered ☐
Body Text Type . 10 pt ☐ Pull Green Proofs of Cuts or Type Standing
Heads 24-30 Bodoni ☐ Set Rules ☐ Allow for Rules
Sub Heads ☐ Rules to be Drawn ☐ Duplicate Exactly
Cut Captions ☐ Folios Set Only Parts Encircled in
☐ Make Electros (OUR FOUNDRY / THEIS FOUNDRY) Make Engravings (OUR ENGRAVER / THEIS ENGRAVER)
☐ Foundry Lockup ☐ Comp. & Makeup ☐ Plano Makeup ☐ Galleys Assembled ☐ Comp. Only ☐ Bunch

ADDITIONAL INSTRUCTIONS ☐ Don't Use Foundry Type

Standing—Charge Complete—Charge Alts Only ☐ Hold Type ☐ Hold in proof box

Nº 1161

REVISE NUMBER 00 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38

MONOTYPE GALLEYS 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69

LINOTYPE GALLEYS 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69

NO. OF FORMS PULLED 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36

NO. OF FORMS REPULLED CHARGEABLE 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31

NO. OF FORMS REPULLED NO CHARGE 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31

SPECIAL COLOR FORMS 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36

OUTSIDE PURCHASES

METAL DELIVERIES

DATE	POUNDS	DATE	POUNDS	DATE	POUNDS		
						Total Weight	
						Type Furnished	
						Net Weight	

SHIPPED HOW AND WHEN JOB DELIVERED

☐ First Class ☐ Parcel Post ☐ Express
☐ Special Delivery ☐ Air Express ☐ Freight
☐ Air Mail ☐ Truck ☐

Proofs Pulled By Tied up in Pieces

LOCATION SORTS

Fig. 2—Miniature illustration shows face and reverse sides of Job Ticket (envelope) used in plant of Monsen-Chicago. Size of the Job Ticket is 9½ in. by 12¾ in. (with flap down.) In the accompanying article, Job Ticket No. 1161 (carried on the envelope) is followed through the plant until the finished product is ready for delivery. Assuming that a job of composition consisting of three sheets of copy and two cuts has come into the plant from John Doe, the receiving clerk in Monsen-Chicago fills in the name and address of the customer, nature of the job, and assigns a number to the job—in this case No. 1161.

The receiving clerk also makes out a White Production Card (see Fig. 3). The Job Ticket containing the copy and cuts and the White Production Card are now given to one of six service men whose desks adjoin that of the receiving clerk.

The service man to whom the job has been passed, preferably is one who knows the likes and dislikes of the customer. The line "Job doped by . . . . . " in the upper right corner of the Ticket is initialed (in this instance by JK) after kind of type and other details have been filled in the proper blank spaces.

While this ticket is for the simplest form of composition and all the spaces have not been filled in, the reader can obtain an idea as to how the Job Ticket fulfills its mission in the composing room.

The Job Ticket (envelope containing copy and cuts) and the White Production Card are now sent to the shop general foreman.

Before sending this time ticket to the cost department upon completion of the job, the total time consumed in chargeable operations are entered in the proper spaces on this ticket.

Set up and cast in advance, the shop foreman keeps on his desk a quantity of slugs one each of which bears the job number, like this: "1161-Monsen". These are set 5 picas wide in 6 pt. roman. Before passing the job out to the department in which it is to be composed, the foreman drops one of these slugs bearing the number corresponding to the number on the Job Ticket in the Job Ticket envelope with the copy and cuts. The slug is put on the galley with the type matter or made-up page by the proofer before he takes the proof which is sent to the customer. In this manner, all type matter is at once identifiable with the Job Ticket.

Fig. 3—At the time of making out the Job Ticket shown in Fig. 2, the receiving clerk at Monsen-Chicago also makes out a white production card. The size of this card is 8 in. by 5 in. The shop general foreman notes the promise for delivery of the job on this card by the service man. This card, as will be noted, contains in addition pertinent information about the nature of the job with which it is necessary for the foreman to be familiar. From a glance at this and other production cards in a file on his desk, the foreman can check the progress of any job in the plant. This card, along with others like it, is kept in the composing room production record files for further reference if necessary or for checking with the cost department in summarizing customer statements.

FRONT

1946 APR 9 AM 10 22 Nº 1161

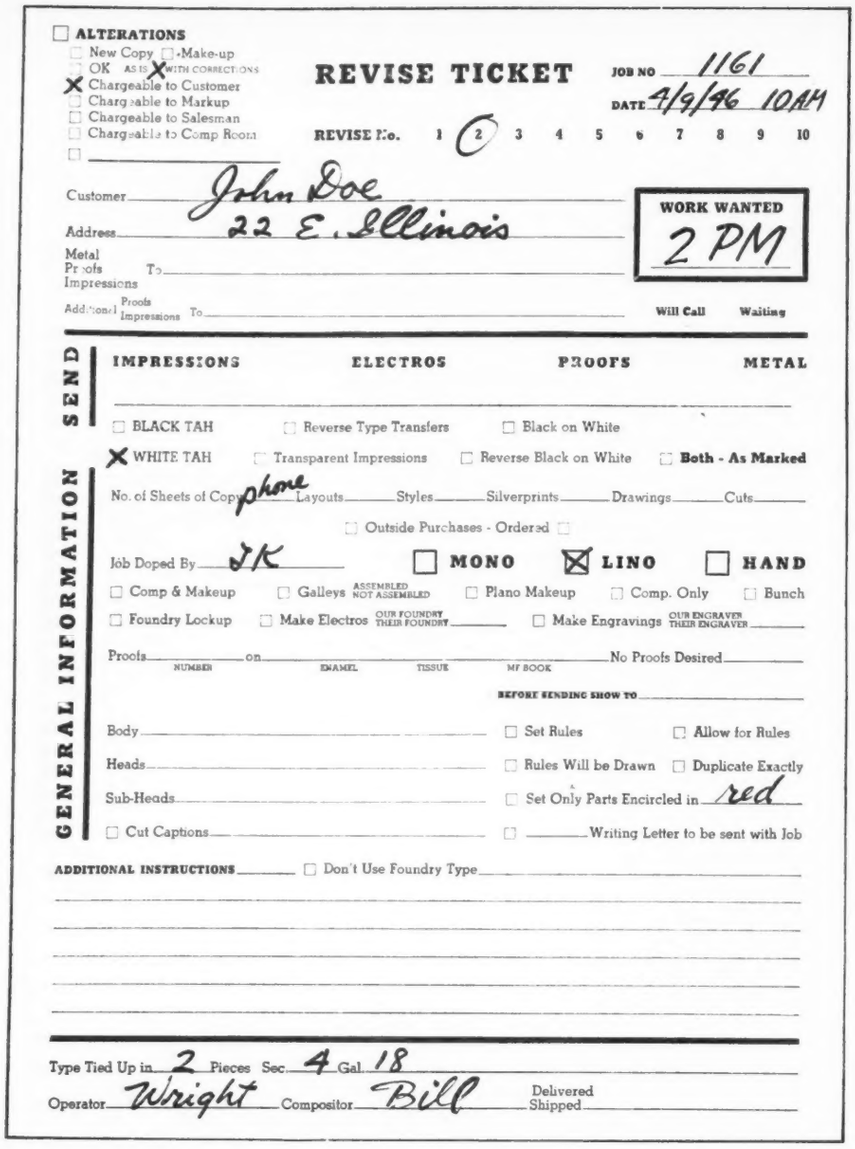
DAVID	LINO	MONO	HAND	TRANSFER	PROOFS or METAL	DELIVERED
4/46		✓	Joe	✓		
0/46						
0/46						
1/46			Bill			

John Doe

ORIGINAL | 1st ALT | 2nd ALT | 3rd ALT | 4th ALT | 5th ALT

BACK

DATE	COPY	PROOFS	LAYOUTS	STYLES	SHIPPED BY
4/10/8AM	3	4			Tony



☐ ALTERATIONS
☐ New Copy ☐ Make-up
☐ OK AS IS ☒ WITH CORRECTIONS
☒ Chargeable to Customer
☐ Chargeable to Markup
☐ Chargeable to Salesman
☐ Chargeable to Comp Room
☐ _____

REVISE TICKET

JOB NO 1161
DATE 4/9/46 10AM
REVISE No. 1 (2) 3 4 5 6 7 8 9 10

Customer John Doe
Address 22 E. Illinois

WORK WANTED
2 PM

Metal Proofs Impressions To _____
Additional Proofs Impressions To _____
Will Call Waiting

SEND

IMPRESSIONS	ELECTROS	PROOFS	METAL

GENERAL INFORMATION

☐ BLACK TAH ☐ Reverse Type Transfers ☐ Black on White
☒ WHITE TAH ☐ Transparent Impressions ☐ Reverse Black on White ☐ Both - As Marked

No. of Sheets of Copy phone Layouts _____ Styles _____ Silverprints _____ Drawings _____ Cuts _____
☐ Outside Purchases - Ordered ☐
Job Doped By JK ☐ MONO ☒ LINO ☐ HAND
☐ Comp & Makeup ☐ Galleys (ASSEMBLED / NOT ASSEMBLED) ☐ Plano Makeup ☐ Comp. Only ☐ Bunch
☐ Foundry Lockup ☐ Make Electros (OUR FOUNDRY / THEIR FOUNDRY) _____ ☐ Make Engravings (OUR ENGRAVER / THEIR ENGRAVER) _____
Proofs _____ (NUMBER) on _____ (ENAMEL / TISSUE / MF BOOK) No Proofs Desired _____
BEFORE SENDING SHOW TO _____
Body _____ ☐ Set Rules ☐ Allow for Rules
Heads _____ ☐ Rules Will be Drawn ☐ Duplicate Exactly
Sub-Heads _____ ☐ Set Only Parts Encircled in red
☐ Cut Captions _____ ☐ _____ Writing Letter to be sent with Job

ADDITIONAL INSTRUCTIONS _____ ☐ Don't Use Foundry Type _____

Type Tied Up in 2 Pieces Sec 4 Gal 18
Operator Wright Compositor Bill Delivered Shipped

Fig. 4—Miniature reproduction of Revise Ticket for Job No. 1161. The original for this is 8½ in. by 11¼ in. printed on manila cardboard. Following the Monsen-Chicago policy that all instructions must be written, and also in order to keep track of all chargeable time, this ticket is enclosed with the second revise proofs which are again routed through the linotype department.

to one of the six service men whose desks adjoin the receiving department, but separated by a partition.

In this case, the service man's initials "JK" are placed in the space on the Job Ticket marked "Job Doped by ——" because "JK" knows the likes and dislikes of the customer. "JK" then indicates that the linotype should be set in 10 point Textype, and heads should be set in 24 and 30 pt. Bodoni Bold. He indicates that proofs are to be sent to the customer on the job in galley form, and also when made up in the form required, specifically, 12 enamel proofs, and two tissues. He also marks on the Job Ticket that three sheets of manuscript copy have been received and two halftone cuts. He indicates, after consultation with the shop foreman, when the first galley proofs are to be sent to the customer, after which all office records and copy go to the foreman. Proofs on the finished job are not promised until after the customer has returned OKd galley proofs and layout of the job.

The shop general foreman notes the promise recorded on the production card for the delivery of the galley proofs to the customer. He sends the Job Ticket and other original matter in the Job Ticket to the Linotype department, but retains the white "tickler" production card, which he inserts in his visual file of jobs in process. From a glance at the 100 or more white tickets in his production record file, he can at any time check Job No. 1161. He knows it is in the Linotype department; also that galley proofs are to be sent to the customer the next day. Now the job is in process.

The Linotype foreman sees to it that the job is set in accordance with instructions, galley proofs are sent to the proof room, corrections if any, noted, whereupon revised proofs are returned to the Linotype department, after which the proofs are sent to the assignment foreman's desk together with the Job Ticket. (If Monotype work had been required on the job, which in this case was not, the copy for Monotype would have been sent to the Monotype room and the routine would have been similar as in the case of the Linotype. Similarly, if hand-set composition had been required, the same procedure would apply). Galley proofs, with copy, then go to the customer. The records show that alterations were made three times which is a low record for advertising men.

Following receipt by the service man of the dummy layout from the customer, the job is then again turned over to the assignment foreman, who sends layout, proofs, and all material to the compositor named "Joe" who has been assigned to do the makeup.

If a special promise was necessary, as is the case in advertising typography which must reach the publication office before the time set for "deadline," the assignment foreman will place the white production record ticket in his special production file immediately before him, and he will follow through to see to it that the job is made up, again sent to the customer for approval, and if and when approved, that the form is sent to the electrotyper designated by the customer to do the job of making plates.

If the plates were to have been made by a photo-engraver, then etched proofs would have been sent in accordance with the instructions.

In every instance, where the customer is contacted, it is the service man who does the contacting. That applies in the case of where the customer comes to the plant, which is not so frequent, or where the contact is made by telephone conversation.

In cases where a promise is recorded, and not kept, as to delivery of proofs or of material, the service man has no argument with the assignment foreman whose business it is to schedule the job, but the matter is at once directed to Peter Paul, the shop superintendent, who investigates the cause of the delay.

If the delay is due to lack of material, management is responsible; if the delay is due to failure on the part of the compositor to do the job within the scheduled time, the superintendent determines that factor, and places blame where it belongs.

The purpose of handling all failures to meet schedules, at once, by the superintendent, is that at no time is any controversy between subordinates permitted to develop as to who was blameable. Thus the whole shop with its 60 or more men on the day shift moves along quietly in doing its work of production. The same procedure follows in the case of a smaller night shift with only one service man on the job.

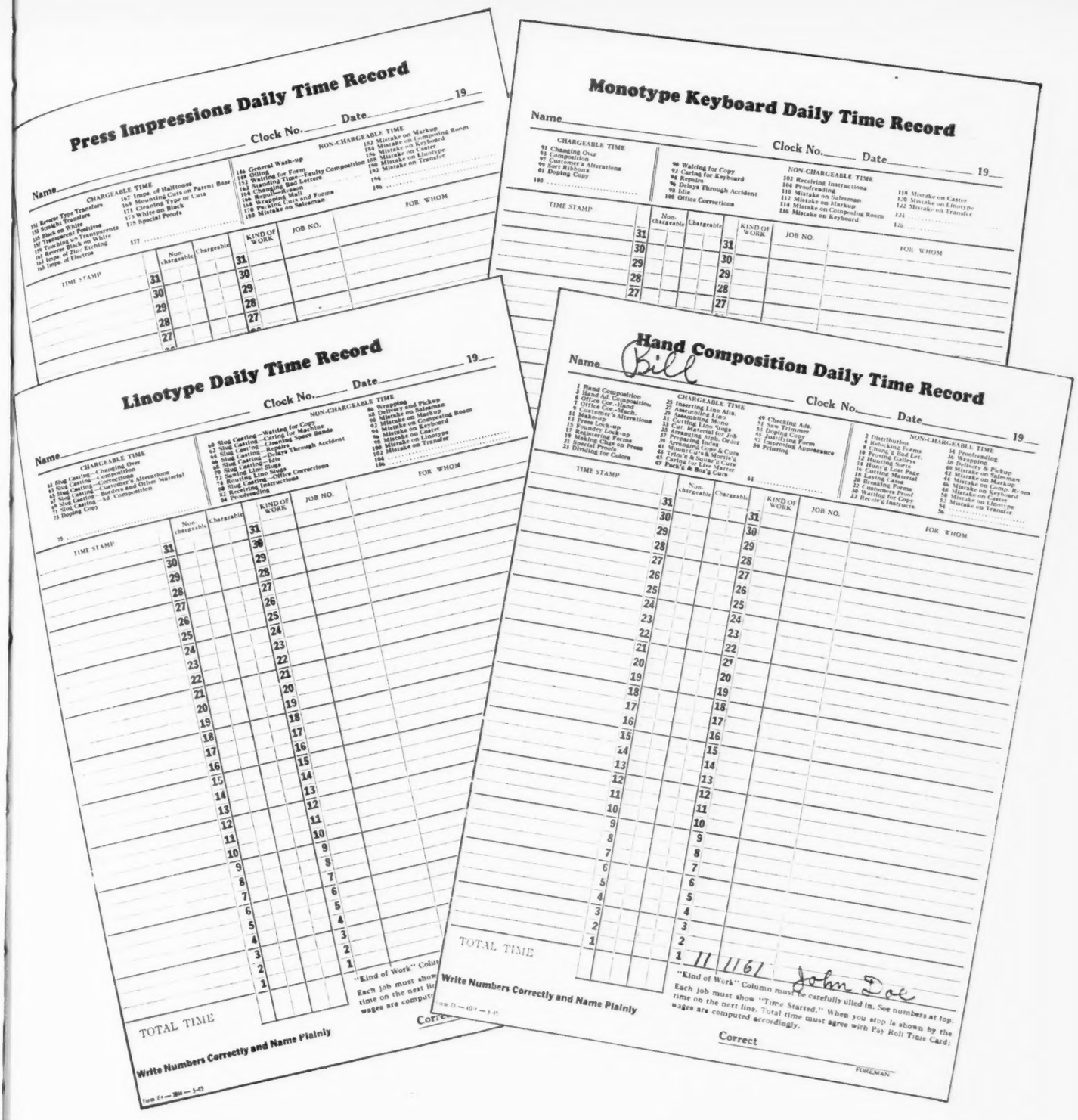
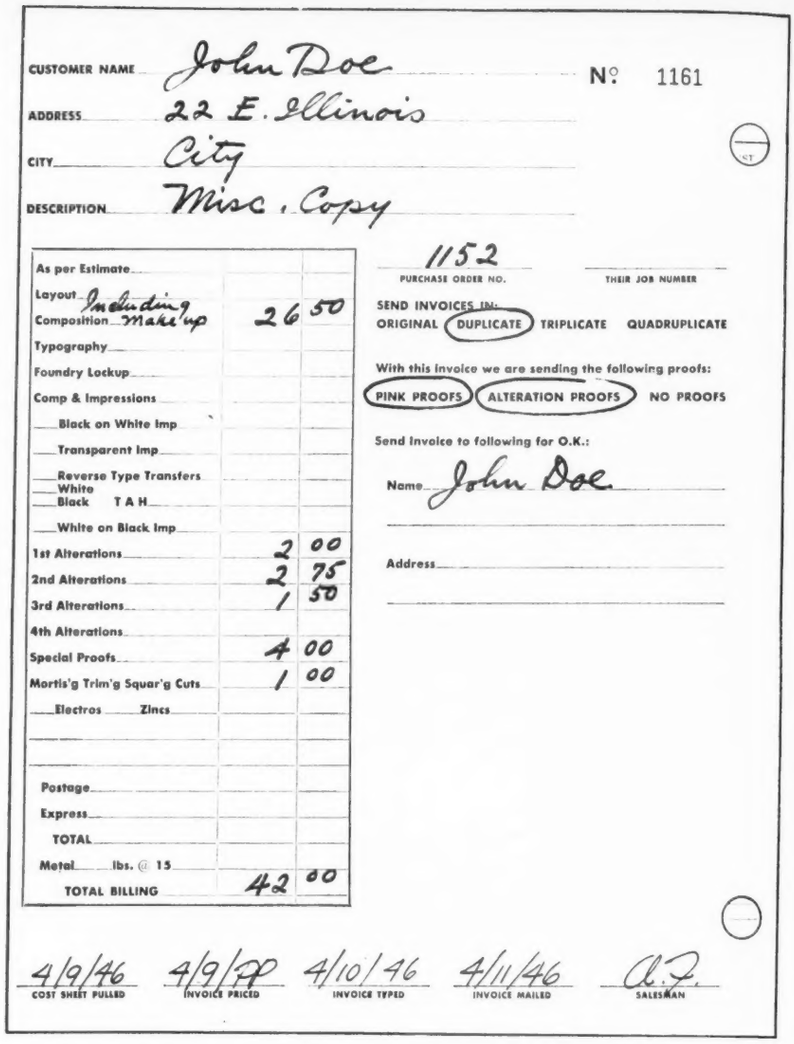


Fig. 5—Miniature reproductions of Time Record cards used in plant of Monsen-Chicago. These cards are made out and are put in the Job Ticket Envelope according to the variety of work as represented by any particular job. To illustrate, on Job No. 1161 (tickets for which appear in the accompanying illustrations) the Hand Composition Daily Time Record operation No. 11 (make-up) for the John Doe job, the commencing and finishing time for makeup would be stamped by the electric clock in the first column. Also, Bill, the compositor, would stamp the commencing and finishing times in the first column for each job he worked on during the shift. Similarly, the kind of hand work, job number and customer name would be entered in the three right-hand columns opposite the time stamps. This particular record is kept with the other tickets in the Job Ticket shown in Fig. 2 so the office will be able to figure the total amount of time consumed on the job.

Fig. 6 — Immediately next to this caption is shown the first page of a folded form called Summary of Individual Order. Overall, the form measures 17 in. wide 11 in. high. It is printed on white bond paper and is bound loose-leaf fashion between covers in the cost department of Monsen-Chicago.

Following the completion of all operations in getting Job No. 1161 out for customer John Doe, the composing room places all records, proofs, memos, etc., pertaining to this job within the job ticket (envelope) shown in Fig. 2. The composing room then sends the Job Ticket to the cost Department. The work of compiling chargeable time for Job No. 1161 is commenced. This time is translated into the dollars and cents rate per hour and the totals are entered on this blank. Statements to the customer are made up from this summary of Individual Order Blank.



CUSTOMER NAME John Doe — No. 1161
ADDRESS 22 E. Illinois
CITY City
DESCRIPTION Misc. Copy

As per Estimate		
Layout Including Composition Make up	26	50
Typography		
Foundry Lockup		
Comp & Impressions		
Black on White Imp		
Transparent Imp		
Reverse Type Transfers White Black T A H		
White on Black Imp		
1st Alterations	2	00
2nd Alterations	2	75
3rd Alterations	1	50
4th Alterations		
Special Proofs	4	00
Mortis'g Trim'g Squar'g Cuts	1	00
Electros Zincs		
Postage		
Express		
TOTAL		
Metal lbs. @ 15		
TOTAL BILLING	42	00

1152 — PURCHASE ORDER NO. — THEIR JOB NUMBER

SEND INVOICES IN:
ORIGINAL (DUPLICATE) TRIPLICATE QUADRUPLICATE

With this invoice we are sending the following proofs:
(PINK PROOFS) (ALTERATION PROOFS) NO PROOFS

Send Invoice to following for O.K.:
Name John Doe
Address

4/9/46 COST SHEET PULLED — 4/9/46 INVOICE PRICED — 4/10/46 INVOICE TYPED — 4/11/46 INVOICE MAILED — A.F. SALESMAN

Fig. 6 — Page One of Summary of Individual Order ⟶

The reason is obvious. Each man's time is worth more than 3c a minute, which is his pay, according to union rules. The rent, light, insurance, supervision, proof-reading, clerk hire, messenger service, cost of autos and motorcycles, salesmen, and even iced drinking water and taxes—all are increased cost factors in the management of the movements of the personnel.

Hence, time cannot be wasted in quibbling. Time is *all* that such a firm as Monsen can sell, and that time must be conserved and sold at a price to provide for defraying all costs of operation, besides netting the management a profit for operating, and pay for the money invested. Unlike a regular printer, Monsen has no paper, nor press impressions, on which to make a profit.

For all of these reasons, the Monsen management requires a record of all items included on the original Job Ticket and subsequent items which are entered as "Revise Ticket"—No. 1, 2, 3, and so forth, for every revision ordered by the customer. As each "Revise" ticket (Fig. 4) is issued, a record is made on the back of the original Job Ticket (Fig. 2) so that in the final check-up, no item is omitted. Likewise, proofs pulled in excess of the number originally ordered are noted on the records.

The Job Ticket is the key item of the costing system employed in the Monsen plant. Since the purpose of the job register book is to make certain that at the end of a period no job ticket is unaccounted for, so also, the Daily Time Record (Fig. 5) for each employee is utilized so that the costing department may know what kind of work was done by each employee for each unit of time spent in the plant each day. For that purpose, each employee must fill in by means of the electrical time-recording clock, the time he starts on a job; also the time he leaves off on the job, with the job ticket number in each case recorded on each daily time card. Thus, the time on each daily time-record card, for each employee, must agree at the end of a working shift with the payroll card which records total time put in by the employee each day.

If such a record were not kept (and there are shops in which compositors are merely expected to mark time on job tickets), there would be no certainty on the part of the management that all time for which they pay employees, are either charged to jobs as chargeable time, or charged to the management as non-chargeable time.

Returning to the service of a Job Ticket: following the completion of the services called for on the face of the Job Ticket, all records pertaining to the job, including memos; proofs on all colors of paper that indicate whether they were proofs of original copy or of revisions; time records; supplemental revises of job tickets; delivery receipts, and other items, are placed within the job ticket envelope and the whole record is sent to the office downstairs.

The girls in the cost department in the office, have in the meantime (while Job. No. 1161 has been in process in the shop), kept a running time record of chargeable time for that particular job. These items of time are copied from the daily time records of employees to the summary of individual orders.

When the Job Ticket arrives with all shop records included (except the white production "tickler" record card (Fig. 3), which is retained in the composing record files to indicate that the job has been completed and records have been sent to the office), the girls in the downstairs' office do their work of compiling the time and extending it in terms of dollars and cents at the rate per hour or other price for each chargeable unit, which is about $5 or $6 an hour. Following the extension of the billing cost, the Job Ticket and contents, including the summary, is then sent to the service man for review, then sent to the salesman having charge of that particular account for his analysis and subsequent report.

Did the salesman estimate properly, in the event that the job was started on the basis of an estimator?

If the Job Ticket as finally compiled and computed failed to come within the salesman's estimate, wherein did he make an error?

If an estimate was made, and

SUMMARY OF INDIVIDUAL ORDER

Nº 1161

OUR CUSTOMER John Doe

HAND WORK

Date	Employee	Comp. 1	Alteration 9	Make-up 11	Lock-up 13-15	5	7	57
4/9	Joe	1 15		1 00	20			30

MONOTYPE

Date	Employee	Comp. 50	Alteration 57	Caster

PRESS IMPRESSIONS

Date	Employee	187		188
		20		

LINOTYPE

Date	Employee	Comp. 60	Alteration 67	65
4/9	Wright	2 00		

COST

COST DETAILS		BILLING COST
Hand Comp.	2 3/4	13 75
Mono. Keyboard		
Mono. Caster		
Linotype	2 00 hrs	11 00
Lock-up	1/3 hrs	1 75
No. 5		
No. 7		
Our Comp. Room Cost		26.50
Outside Purchases		
TOTAL COMPOSITION		26 50
Alterations Hand	1 50	
Alterations Keyboard		
Alterations Caster		
Alterations Linotype	4 75	
TOTAL ALTERATIONS		6 25
Press Impressions	4 00	4 00
TOTAL COMPOSITION WORK		36 75
SELLING COST		4 25
GRAND TOTAL		41 00

MORE WORK

Inside Spread of Summary of Individual Order

changes were made from copy, how shall the itemized invoice read?

From the salesman's viewpoint, were all conditions met by the shop in executing the order?

With such a report from the salesman added to the record of the work done as recorded on the job ticket, and supplemental records, the top management of the business, represented by Myron Monsen, Senior, or his son, Myron, Junior, checks over the entire job, and approves the job for billing. Following the billing, it is presumed that the invoice will be paid in the course of business routine, and the Job Ticket is filed in its cabinet for future reference.

This concludes the story of a Job Ticket.

The one remaining form used in the Monsen plant is an Employee's Time Ticket measuring 3 in. wide by 10¼ in. high. Blanks provide for one-week time keeping. Total earnings and deductions are also computed on the back side of the card.

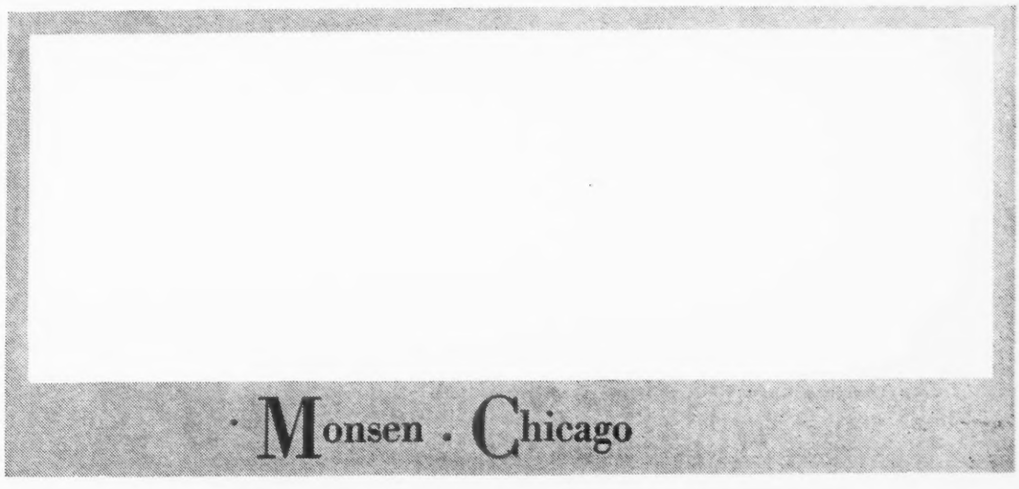


Fig. 7 — Reduced size reproduction of package label used by Monsen-Chicago. Original label is 3 in. high by 5⅝ in. wide. Label is printed in green ink.

Cebelect — A New Electrotype Plastic Molding Material

A NEW electrically-conductive plastic molding material (called Cebelect) which is claimed to bear much promise of eliminating the conductivity coating operation in electrotype plastic molding has been discussed with the sponsors by a number of officials of the International Association of Electrotypers and Stereotypers. The *Electrotypers & Stereotypers Bulletin,* in its June issue carries a report of the presentation made by representatives of Boutwell-Foster Co., Inc. before the executive board meeting of the International Association of Electrotypers & Stereotypers held in Cleveland, May 1946. C. Ed Boutwell of the Boutwell-Foster Co., is developer of Cebotype plastic printing plate announced in *Printing Equipment Engineer* some time ago.

Apparently this new plastic molding material is still in a highly experimental state. It is anticipated that prominent members of the electrotyping industry have expressed their willingness to "play with" the new material in order to eliminate certain "bugs" which may or may not develop when it is used in actual production operations in electrotyping plants.

Among the properties claimed for Cebelect so far as developed are: (1) It is electrically conductive and may be transferred from molding operation directly to the deposition bath; (2) Shallow indentation in halftones with deep indentations on the type form; (3) Molding directly from foundry type in the form does not injure the type.

After "guinea pig" trials have been conducted in member plants, further report will be made to the trade.

Conference Dates

ANPA Mechanical Conference—Palmer House, Chicago, Ill., June 9, 10, 11, 1947. Worth Coutney, Chairman; Walter E. Wines, Manager, ANPA Mechanical Dept., 370 Lexington Ave., New York 17, N. Y.

Great Lakes Mechanical Conference—Hotel Claypool, Indianapolis, Ind., October 27, 28 and 29. George Fuller, President, Stereotype Supt., Cleveland *Press;* Al Oberg, Secretary, Comp. Room Supt., Flint (Mich.) *Journal.*

Illinois Newspaper Mechanical Conference—Waukegan, Ill., Saturday and Sunday, September 14 and 15. President, Clarence R. Snethen, Superintendent, Waukegan (Ill.) *News-Sun;* Secretary-Treasurer, Howard Colton, Pressroom Foreman, Bloomington (Ill.) *Pantagraph.*

International Association of Printing House Craftsmen—Mount Royal Hotel, Montreal, Canada, Sept. 9, 10, 11. H. Guy Bradley, President, 5480 N. Illinois St., Indianapolis 8, Ind.; Herbert Threlfall, Secretary, 55 Pine St., Providence 3, R. I.

International Trade Composition Association—Atlantic City, N. J., Sept. 19, 20 and 21. Lester A. Neumann, President; Frank M. Sherman, Executive Secretary, 1015 Chestnut St., Philadelphia 7, Pa.

National Association of Photo Lithographers—Shoreham Hotel, Washington, D. C. October 3, 4 and 5. Walter Soderstrom, Executive Secretary, 1776 Broadway, New York 19, N. Y.

National Printing Equipment Association—Hotel Traymore, Atlantic City, N. J., Monday and Tuesday, Sept. 9 and 10. James E. Bennet, Secretary, 140 Nassau St., New York 7, New York.

New England Mechanical Conference—Hotel Statler, Boston, Mass., Oct. 5 and 6. George L. Green, President, Providence (R.I.) *Journal;* Walter C. Crighton, Secretary-Treasurer, New London (Conn.) *Day.*

Northwest Mechanical Conference—President, Wm. C. Brown, Mechanical Supt., Minneapolis (Minn.) *Star-Journal;* Vernon Eck, Secretary, 3725 48th Ave. S., Minneapolis 6, Minn.

Pacific Newspaper Mechanical Conference—1947 meeting at Hotel Biltmore, Los Angeles, Calif., May 10 and 11, 1947. President, Edw. Sparks, Pressroom Supt., Los Angeles *Examiner,* Secretary, Fred J. Moyer, *Daily News,* Los Angeles, Calif.

PNPA Newspaper Mechanical Conference—Wm. N. Hardy, Mgr., Pennsylvania Newspaper Publishers' Assoc., 209 Telegraph Bldg., Harrisburg, Pa.

Printing Industry of America—Traymore Hotel, Atlantic City, N. J., September 9 through 12, 1946. James R. Brackett, General Manager, 719 Fifteenth St., N. W., Washington 5, D. C.

SNPA (Eastern Div.) Mechanical Conference—George Washington Hotel, Jacksonville, Fla. September 2, 3 and 4. C. Frank Mann, Chairman of the Mechanical Committee, c/o *Courier-Journal* and *Times,* Louisville, Ky.; Walter C. Johnson, Manager SNPA, P. O. Box 1569, Chattanooga 1, Tenn. Harvey R. Capps, Chairman of Jacksonville Conference Committee.

SNPA (Western Division) Mechanical Conference—Secretary, C. W. Tabb, 723 Texas Bank Bldg., Dallas, Tex.

Boston Conference Room Reservations

Walter (Pop) Crighton, Secretary of the New England Newspaper Mechanical Conference c–o *The Day,* New London, Conn., has announced that due to the crowded hotel situation in Boston, it is necessary for those desiring rooms at the Statler, where the conference is to be held, to secure them through his office. The conference will be held this year on Saturday and Sunday, October 5 and 6. All meetings will be held, as in former years, at the Hotel Statler.

As he explains this move, many people will attempt to use organizations to secure rooms, particularly if the World Series is held in Boston. This makes it necessary to set up some sort of regulation to make sure that all of those desiring rooms to attend this conference are taken care of

"Pop" has worked it out with the Hotel Management in the following manner: Letters and registration cards are to be mailed to all members who registered last year. These registration cards and requests must be returned to his office before September 15 along with a check covering registration costs. The hotel has allotted the conference more rooms than ever before, but has set September 16 as the dead line.

Plastic Molding Patent Assigned

On May 21, 1946, the U. S. Patent Office issued Patent No. 2,400,518 to Frank W. Kreber, Bruce W. Gonser, and Roland M. Schaffert, all of Columbus, O., who in turn assigned the patent to Printing Plates Research, Inc. Six claims have been allowed. The claims cover essentially the manufacture of a vinyl acetate-vinyl chloride co-polymer (such as Vinylite) electrotype mold. It is not the intention of Printing Plates Research to confine the licensed operations of plastic molding to members of that organization. Full technical information and license rights will be supplied to any electrotype company or department interested under a liberal license arrangement. Information concerning the license agreement may be obtained from Joseph Schwarts, President of Printing Plates Research, Inc., 1027-1031 Arch Street, Philadelphia, Pa., or J. Homer Winkler, Secretary-Treasurer, Printing Plates Research, Inc., 505 King Avenue, Columbus 1, O.

Schedule Maintenance

in mechanical departments of McCall Corporation plant, Dayton, O., insures production flow — Definite department head responsibility great factor in its promotion — How production is handled in large publication printing plant

By HAROLD MELLVILLE PEER

THE "time" factor motivates all action within the McCall Corporation's great printing plant at Dayton, Ohio. "On sale" dates set by publishers provide the focal point from which all activity emanates. In order to meet these "on sale" dates, all Dayton operations must be accurately scheduled and a rigorous program of 'following through' must be adhered to.

In order to meet these schedules, departmental responsibility has been definitely fixed, thoroughly qualified personnel has been placed in key jobs, and the best available equipment has been purchased. Barring the usual human frailties, these three factors have permitted the Corporation to do an outstanding job.

From the beginning of operations, right on through to the final shipping of the printed magazines every step in the process has been carefully worked out. At the same time every operation has been segregated into definite departments so there will be no doubt where the work of one department stops and that of another takes over. Whenever anything goes wrong anywhere in the plant, it is easy to put a finger on the trouble.

In many printing plants, demarkation between departments and between individuals as to their duties is indefinite. That fault has been definitely eliminated in the McCall plant.

Another fault in some printing and publication plants is that the final dummy is "dumped" into the pressroom with the made-up type pages. It is up to the pressroom foreman to saw wood and get out the work. Practically all of the printing done in this plant is from plates — not made-up type pages. These plates and their respective dummies with the addition of a time schedule are delivered to the pressroom ready for printing. Thus the pressroom foreman knows that by such and such an hour of such and such a day, all the forms must be off the press and the signatures must be in the hands of the bindery foreman. The preparation of definite work schedules, with time and date fixed, is followed all along the line.

In the McCall plant there have been two noticeable results of the policy of working out schedules and definitely fixing responsibility. In the first place, the jobs go through the plant with dispatch according to schedule. But quite apart from this there has been developed and there is everywhere noticeable an *esprit de corp*. Everybody seems to have a liking for his work because he knows he will not be blamed for somebody else's mistake. This employee attitude, together with the policies of the McCall organization makes it possible to turn out millions of publications monthly with no more than the usual human slip-ups.

Production Department

IT has been truly said that the hub of operation in any large industrial plant is the Production Office and nowhere is that fact more aptly illustrated than at the McCall Corporation's Dayton plant. Here, under the watchful eye of Production Manager Earl Brown, begin the varied and multitudinous operations necessary to the final production of 25 to 30 million magazines per month. In this office, original copy, layouts and cuts for the various publications are processed. In this office also, is worked out complete pressroom, bindery and mailing schedules for the various publications.

Fixed unit responsibility lightens the huge task which confronts Mr. Brown from day to day. It is the function of the Pre-Press Detail unit, under the foremanship of T. F. Herbert and R. M. Levy, to receive, check and process through the Composing Room all editorial and advertising copy furnished for the publications printed in Dayton. After their job has been completed, dummies are turned over to Mr. Brown and his assistants who break them down into the various press forms, a special printed form being used to designate how the pages for each press run on each publication are to be imposed on the press. Plate requirements are also determined by Mr. Brown who must, through his assistants, maintain a constant check with the plate-making foundry to see that the plates are delivered on time and in sufficient quantity.

During the preparation of each job's production schedule, Mr. Brown must also keep in constant touch with the Material Control Department to make certain that the necessary paper stock and other supplies will be available when needed to start the press run. In a plant the size of McCall's, Mr. Brown's job is a difficult one since some of the factors are not always within his control. With him, everything must be where it is needed and when it is needed.

Production Control Board

IN THE office of General Manager Robinson there are specially made Production Control Boards used to keep an accurate day-by-day check on the progress of *McCall's Magazine* and *Redbook* through the plant. These Production Control Boards cover four months at a time, giving complete detail at all times on all phases of production progress.

The *McCall* board for instance, is divided horizontally into two equal sections, the upper section showing the state of production in terms of time and the lower section showing the same details of production but in terms of production instead of time.

Across the top of the board and serving both the upper and the lower sections of the control board, are individual holes representing days, these in turn being grouped into months so that four months are shown at one time.

Down the left side of the control board numbered pegs are inserted. These indicate the presses on which the magazines are printed. These numbered pegs, each indicating a press in the pressroom are the same in both the upper and lower sections thus making it possible to keep a record by press on a time basis and also by press on a production basis.

Cords are run across the board horizontally to make easy reference possible since the eye can very easily follow the white cord from the left-hand side to the point on the control board where the desired information is indicated.

Normally, the presses are not scheduled to work on Saturday and Sunday so these days on the control board are indicated by gray pegs. However, if production lags in the time based portion of the board, or if in the production portion of the board output is under schedule, then pink pegs are substituted for the regular gray pegs which indicate that those presses that are behind schedule either from a time basis or a production basis must work Saturday and Sunday, too, in order to come up to schedule. By the same token if one or more presses does more than its scheduled output, then a blue peg is put in the hole representing the day when that press can shut down because it has exceeded its scheduled production.

In the lower section of this control board each unit or separate section repre-

sents 100,000 copies thereby making it easy to keep the record. There are two horizontal lines for each press, one to be used to indicate scheduled production and the other to indicate actual production. For indicating scheduled production green pegs are used with yellow pegs being used to indicate actual production. Naturally when these two pegs are together, that is, one above the other, it indicates that the press is producing according to schedule and is neither ahead of schedule nor behind from a production standpoint.

In the upper portion of this board red pegs are used to show how each press is running according to schedule. If any press is running either behind or ahead of schedule then the days ahead or behind are indicated by numbered pegs, the number indicating the days ahead or behind.

The two cords in the upper section and which run vertically show each month when all forms must be off the press and when the binding job must be completed. The first cord, that is, the left-hand cord, shows the date when all forms must be off the presses. Between this cord and the other cord, the one to the right of this first cord, there is an interval of five days, which is the time allowed the bindery to gather, bind and mail the publication and make shipments to distributors all over the country. This second cord indicates the "on sale" day all over the country. Since the entire editions are printed at Dayton, the difference in shipping time to reach all parts of the country on the same "on sale" day is taken into consideration by the shipping department in making shipments. Thus the far-away bundles are shipped out first with nearby places being served last.

At the side of the control board there is a card file in which is found all the necessary data as to press schedules, and so on for ready reference in making corrections on the control board. Once a day the control board is brought up to date with a shifting of the pegs and sometimes a change in the color of the pegs to give a picture of production both from a time and a production basis right up to that hour of the day. On this board General Manager Robinson daily watches the progress of *McCall's* and *Redbook* through the plant.

Composing Department

A MAGAZINE as a finished product has embraced many detailed operations. One of the many, and highly important, of these operations is the work that is performed in the Composing Room. This type of work abounds with opportunities for committing errors, and consequently alertness and foresight are prime requisites of the people employed therein.

The veritable influx of copy, layouts, and cuts, which later will result in 25 to 30 million printed magazines per month, into the Composing Room portends to be an enormous task. Time, as in all problems of production, is the all-important element to the final assemblage of a page.

Layout of a department, such as will lend itself to speeded-up operation, is a prime essential and C. M. Blotner has so arranged the Composing Room as to provide what almost might be termed "conveyor-belt" precision.

A battery of Linotypes and Intertypes, equipped with quadding and centering devices produces from 5000 to 7000 lines of straight matter in an 8 hour shift. Working as at present, on a two-shift basis, the machines will produce over 3½ million lines per year. As a part of the expansion program, new typesetting machines will be added.

Makeup benches and lockup stones, located in close proximity to one another, add greatly to the building of large volumes of type matter into page and later, plate form. Excellent lighting facilities, clean and uncrowded work areas present the opportunity for high-class production.

The Layout and Proofreading units of the Composing Room are adequately manned and it is in these units that all work handled within the room, is checked against the original layouts and copy furnished by the various magazine editors or advertising departments.

In addition to the handling of leading monthly publications it has been necessary to gear the men and machines of the Composing Room to the task of expeditiously producing three nationally-known weeklies. That this has been done is attested by the contracts which have existed over a period of years between the McCall Corporation and Weekly Publications, Inc., (publishers of *Newsweek*), and The United States News Publishing Corporation (publishers of *The United States News* and the new weekly, *World Report*).

Engraving and Electrotyping

THIS department which also includes the stereotyping department as a separate unit, is under the management of Fred Shelton, superintendent. Here all plates are checked for bad edges, bad type, shallow screen in halftones and any and all other defects. If defects are found they are corrected before the plate is released. In the case of electros from advertisers where the text matter is to be changed, the electros are patched with the old type matter cut out and the revised or new text substituted in its place. Cuts are also mounted in this department.

In the engraving section of the department the work that is performed consists chiefly of correction of color plates.

The electrotyping section works on a three-shift basis and is never closed. This section is geared up to the idea that press runs must go through on schedule.

Stereotyping Department

THE Stereotyping Department is under the direction of Horace Sucher who is in charge of production. The McCall plant prints six fashion magazines, its *Style News*, the *Blue Book* from cover to cover, as well as a considerable portion of its job work from stereos. That these stereos stand up under long press runs may be known from the fact that editions of as many as 1,725,000 copies of *Style News* have been run in two colors from a single set of stereos without change of a plate. Fully 85% of the stereos turned out in this department are for four-color work and include 120 line screen halftones.

Pressroom

THE Pressroom at McCall's, under the direction of J. G. Fischer, Pressroom Superintendent, really is three pressrooms knitted into one large press department, each separate division of the department doing its own specialized work.

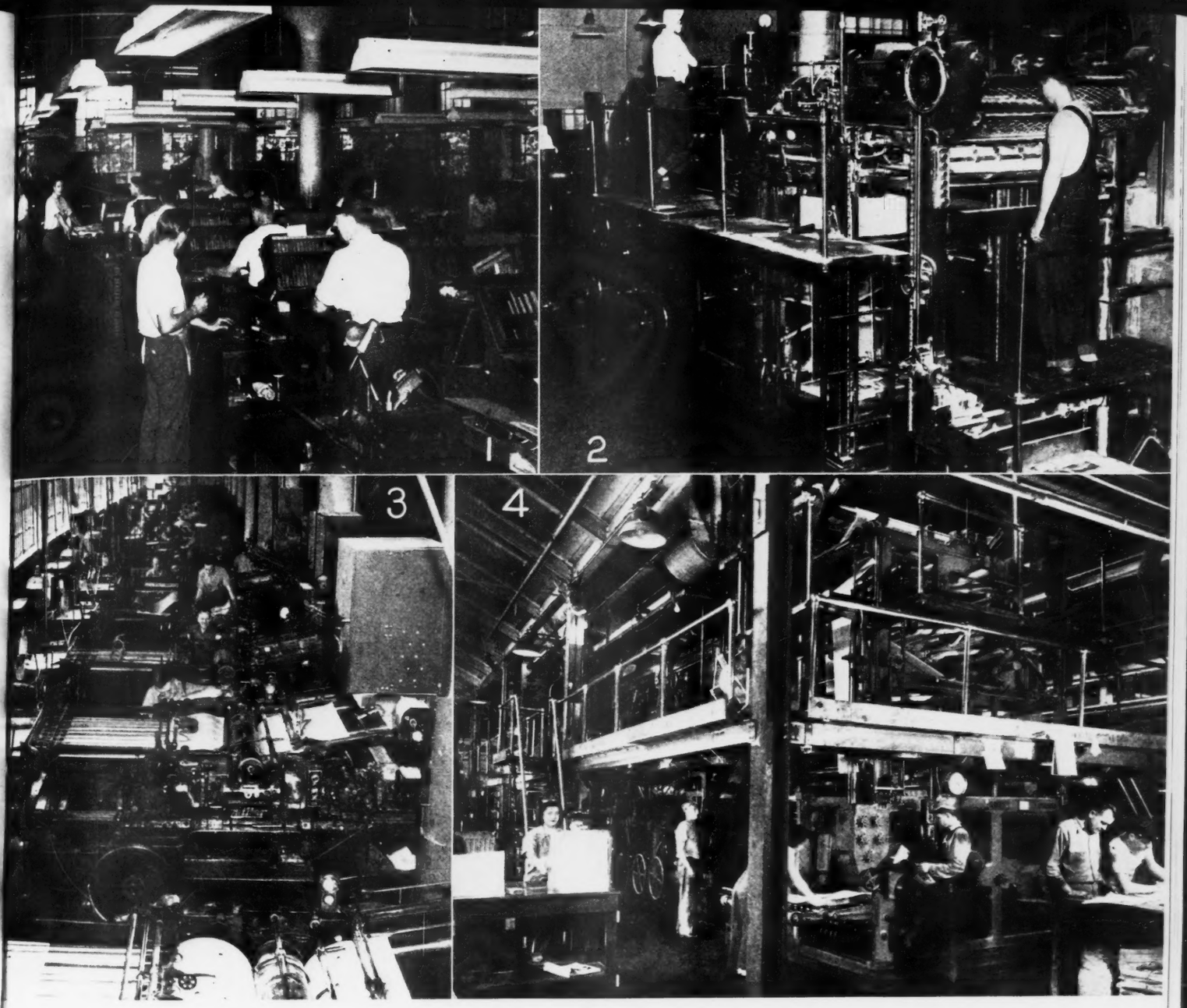
The three divisions of the Pressroom are the Sheet-Feed Room, the Multiple Color Division and the Rotary Press Section. All three divisions of the pressroom run three eight hour shifts a day.

The Sheet-Feed Room is for the printing of covers and inserts, all in colors. For the most part the publications produced at the McCall plant are 8½ in. by 11 in. in size which helps standardize pressroom activities to some extent.

In the Multiple Color Division there is a reconverted press, which was made by taking two 4-color Cottrells and coupling them together. In coupling the two presses together, the reconverted press prints four colors on each side of the paper from rolls, one side going through and printing and then going through an oven to dry before the other side of the paper goes through the press to be printed and then through the oven to dry. This press delivers two 24-page signatures or three 16-page signatures, folded. A folder was added to the press so that the reel-fed paper, after it is printed, is cut and folded.

The other presses in this division are Cottrell and Goss make, each a double 5-color press, printing five colors on each side of the web. They deliver 40 pages folded, generally two 20-page signatures. These presses are used for the printing of *McCall's* and are equipped with two ovens for drying the ink. These presses are all equipped with automatic pasters and take a 70-in. web and run continuously, no shut-down being necessary to shift from one roll of paper to another. All are equipped with rubber rollers and have electric folding machines attached, thus turning out the signatures folded, ready for the bindery.

The third section of the Pressroom is known as the Rotary Press Section and is for the printing of black and white



Several Mechanical Department Views in plant of McCall Corporation, Dayton, O. It is not possible to show all of the equipment used in this plant—there's just too much of it, even were the photographs available.

Fig. 1—Hand section of McCall Corporation Composing Room, Dayton, Ohio. The Composing Room is in charge of C. M. Boltner.

Fig. 2—One of the Claybourn five-color sheet-fed rotary presses.

Fig. 3—Looking down the line in Job Press Department at McCall Corporation, Dayton, O. Much of the work done in this department is printed from flat nickel-faced stereotype plates mounted on patent base—considerable of it being four-color work.

Fig. 4—One of the Goss multi-color 40-page heat-set presses in plant of McCall Corporation, Dayton, O. It is a double five-color press, printing five colors on each side of the web. Delivers 40 pages folded, generally in two 20-page signature forms. The presses are equipped with ovens for drying the ink. Takes a 70 in. web. Is equipped with rubber rollers and delivers the product folded.

forms and two-color work. In this section there are Goss presses of 32-page capacity and 64-page capacity. These presses turn out approximately 3,250,000 copies of publications per week. This in itself would be quite a run but it isn't all that is done on these presses. In between runs of the weeklies various runs for the different monthlies are put on so that these Goss presses are in practically continuous operation 24 hours a day.

An unusual feature of one of the 32-page Goss presses is that it is equipped with a 3-in-1 impression cylinder which prints three colors from the one impression cylinder on one side of the paper only. The second printing on the other side of the paper yields two colors at a single impression. Somewhat of a record was recently made on this press when 151,000 impressions were run in 8 hours with seven changes of plates being made.

In this same section there is a specially built Goss press used on *Popular Science Monthly*. It is a 192-page affair that prints two colors on both sides of the paper. It uses two-page cast plates and is of the permanent lockup type. It has a staggered plate cylinder and is heat-set. The entire *Popular Science Monthly* is printed in two runs. The second run is generally the full capacity of the press (192 pages) with the first run consisting of the rest of the book. If the size of the book should drop materially, then the two runs would be more nearly equalized, in which case the second run would be less than the capacity of the press.

Other 96-page Cottrell presses, also located in this division and all equipped with heat-drying attachments are used to print the body of many of the monthly publications for contract clients. In addition there are 32-page rotary presses that print from rolls but deliver printed sheets which must be folded in the bindery department. These presses are used only for overloads.

Some Plant Executives *for McCall Corporation, Dayton, Ohio.* — There are a number of other plant executives, each holding responsible supervisory positions in this large publication printing plant. From left to right, the men shown above are:

1. Wm. S. Robinson, Plant Manager; 2. George E. Sheer, Assistant Plant Manager; 3. Earl Brown, Production Manager; 4. T. F. Herbert, Pre-press Foreman; 5. Clarence Blotner, Composing Room Foreman; 6. Fred Shelton, Engraving and Electrotyping Superintendent; 7. Horace Sucher, Stereotype Foreman; 8. J. G. Fischer, Magazine Pressroom Superintendent; 9. George E. Bidwell, Pattern Manufacturing Superintendent; 10. Walter Wagner, Bindery and Mail Room Superintendent.

Job Press Department

THE Job Press Department is a very important department of the McCall plant because it not only does all the job work for the McCall Corporation and whatever job work the plant does for its clients whose publications are printed there but also does a goodly share of pattern printing. This department is under the direction of Tom Taylor, Superintendent.

Some idea of the importance of the department may be gained from a listing of the work that it does. All of the McCall counter pattern books are printed here; a considerable number of the four-color cover and insert jobs, this work being done on two-color presses, running twice through and the envelopes for the McCall patterns.

The Job Press Department is different from the Magazine Press Department. This section of the McCall plant is not unlike any other first class job shop. There are, however, no lockup men, no make-ready men or other specialized employees. Each pressman lines up his own job, puts the plates on the patented bases in the proper place (patent bases are largely used in this department since most of the printing is from stereos), does his own makeready and everything else required on that particular press job. It might be well to stress at this point that makeready is one of the most important operations performed in this department. The importance of this can be seen when it is realized that most of the work done here is color work where perfect register and proper impression are necessary.

Some of the presses run on the same sort of work month in and month out, as for instance envelopes for McCall patterns. The only change made there will be to substitute a different form for one or more of the envelopes, the envelopes being printed five up on a sheet.

Much of the printing done in this department is from nickel-faced stereos which stand up and give as excellent an impression at the end of the run as at the beginning. Even in four-color work where perfect register is demanded it has been found that the nickel-faced stereos give satisfactory performance.

Pattern Manufacturing

OUTSIDE of the actual printing of the various publications issued from the McCall plant, the pattern manufacturing division is easily the most important of the entire enterprise. An average of 2,000,000 patterns a month are produced in this plant with the run going as high as 2,500,000 in some months. This division is under the managership of George E. Bidwell who must make his deadlines with patterns just as other departments must make their deadlines with publications.

In the McCall plant the patterns are printed by the offset process. The Knudsen process for making printing plates is used. In the albumin process a negative is used to make the copy from which the printing is done, whereas in the Knudsen process a positive is used.

The tracings for the patterns are all made in New York, N. Y., and sent to the plant at Dayton for reproduction. These tracings are on a varnished transparent paper. The various pattern pieces are outlined on this paper in India ink and have indicated all notches and necessary instructions incorporated on the sheets.

These designs are then transferred to zinc plates for offset printing. Each plate is printed in lays of 250, 500 or 1000 and are wound on collapsible reels as the continuous tissue sheet comes from the printing rolls. At the end of each run, the reel is collapsed and the printed tissue is "sheeted" by cutting once with a circular saw that is attached to the press. The flat sheets are then laid out on a table and clamps applied to keep the sheets from shifting.

With the clamps applied to prevent shifting of the sheets, the bundles of printed and clamped sheets go to a band saw where the individual pieces composing the pattern are cut apart. Each individual piece is cut out of the sheet with a margin of roughly ½ in. being allowed outside of the outline of each piece. This margin is known as the "margin of safety" or "margin of accuracy." It would be impossible to cut the sheets on the piece outlines with close accuracy so this allowed margin makes it possible to cut in stacks and still be certain that no individual pattern piece will have the piece outline cut off. The woman in using the pattern, lays it on the cloth and cuts right on the piece outline and thus gets her cloth pieces absolutely accurate.

After each piece is cut out of the large sheet it is tied into a bundle with all of the pieces forming one pattern and one size being tied into a large bundle.

After cutting and bundling, the bundles go to the inspection room where they are checked and afterwards are sent to the assembly room where the various pieces of a pattern are assembled and folded and put into an individual envelope ready for distribution to the stores handling the patterns. In assembling the pieces of a pattern a "cut and sew guide" is included, which contains definite and complete instructions for cutting and sewing the garment for which the pieces are the pattern. The enveloped patterns are then tied in bundles according to pattern and size.

The folding operation is interesting. The various pieces of a pattern of a size are laid on a rack, each part separately. The assembler, a girl, picks up one of each part, folds them together and with a "cut and sew guide" puts it in its proper envelope.

On an average the girls turn out a thousand folded patterns a day. Each type of pattern has had a folding time figured out for it which is the standard or basis for operations. The girls are paid a basic hour rate wage with bonus provisions. In order to get the bonus the girls must do better than the standard set and on which the hour rate is based.

There are around 6000 different items in the pattern manufacturing division.

Besides the patterns this department also publishes the *Style News*, a monthly give-away publication showing that month's new styles. This is sent to all dealers in patterns for free distribution to their customers. An edition of 2,500,000 copies of *Style News* a month is put out and distributed, which in itself is no mean chore.

A surprisingly limited equipment produces this great volume of patterns. The patterns themselves are printed on Scott offset presses, which run at 5400 impressions an hour, printing on pattern tissue. This is speedy work for these web presses on such thin stock. A Webendorfer press is used to print the cut and sew guides. This press prints on both sides of the paper and at the same time, cuts and folds the guide, which comes off the press all ready for insertion in the envelopes with the pattern covered by the guide. This web press operates at 16,000 impressions an hour. In addition, there are Cottrell rotary presses operating at 5000 impressions an hour.

Expansion Program

THE spirit of the McCall Corporation has always been one of growth. Today, on the threshhold of a postwar world, growth is again the guiding spirit of the McCall Corporation. Under the able management of William S. Robinson, aided by Assistant Manager George E. Sheer, an expansion program will materially enlarge the facilities of the McCall plant.

Its present plant is about 740 ft. long. An extension to this building, measuring 340 ft. is being added which will give the plant an overall length of nearly 1100 ft. This extension will be largely two stories in height. A two-track railroad spur comes into the present building. This is being removed and will be relocated elsewhere so that additional floor space, now taken up by the railroad spur will be available for productive purposes. Included in the building program will be improvements in the locker rooms and rest rooms, the addition of recreational facilities, improvements and enlargements of the present cafeteria so that it can serve more than 1000 persons per hour with the latest air conditioning apparatus to make it comfortable the year around. In the plant flourescent daylight type lighting will be installed to improve working conditions. This expansion program will be completed by November of this year.

New mechanical equipment will also be added in the enlarged building.

New typesetting machines are on order.

New press equipment will consist of Claybourn five-color presses and Cottrell two-color presses, the latter for sheet feed. In addition new web presses of various makes and sizes will be added.

Modern means of handling paper from cars to press will be installed which will make this almost completely mechanical with overhead tracks and dollies.

An electrotyping plant will also be installed.

The bindery will be modernized by the addition of the latest Sheridan equipment.

With the increased facilities that these improvements will give, it is anticipated that other publications will be added as clients. Already contracts have been signed with Street & Smith of New York, N. Y. to print *Charm* at the McCall plant. In addition, *World Report*, to be issued by David Lawrence will be printed here.

During the war this plant like every other civilian enterprise was hard hit by the draft and enlistments. Over 600 have been in service of which more than half have since been mustered out and returned to the McCall plant either to take up their old job or a better job. With the expansion now being undertaken, McCall's anticipate that the employees displaced by returning veterans can be offered employment so that there will be no displaced employees because of the ending of the war and the return of the veterans.

Ink Manufacturing

PRACTICALLY all printing ink used in the McCall plant is manufactured in the Ink Manufacturing Department under the direction of Jack Gwaltney. The one exception is black ink of which a considerable quantity is purchased from ink manufacturers although some black is also produced in the Dayton plant.

Apart from the standard colors used, this plant has a steady need for special colors, tones and shades for its advertising pages which very often if not always, portray the merchandise advertised. In order to get these colors accurately representative of the merchandise the ad copy stresses, extreme care must be used in matching.

To obtain these exact tones and shades of colors all sorts of samples are received at McCall's. These samples range from swatches of cloth to pieces of thread. All are promptly sent to the ink manufacturing department where Mr. Gwaltney gets busy to see what can be done about it. In some instances it means nothing more than a blending of two colors already more or less standard or perhaps a toning down or up of some single color with a white or some other ink.

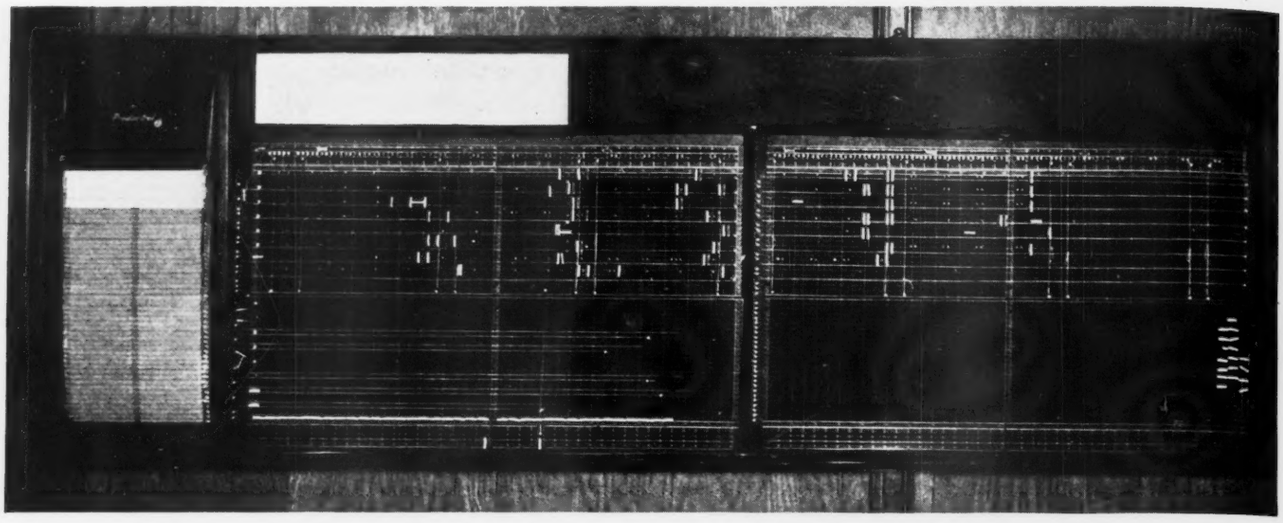
This ink manufacturing department is not a blending or mixing affair but actually an ink manufacturing plant within a printing plant. The ink manufacturing process starts with the pigment and the oil and goes through every stage of manufacture as in every other ink manufacturing plant.

The department produces an average of 1,500,000 lbs. of ink a year.

Roller Coating and Grinding

ALTHOUGH all printing plants use ink rollers and many of them use rubber rollers in addition, there are some who recondition their own rollers. The McCall plant has its own roller coating and grinding department under the foremanship of W. R. Elliott. This department reconditions or recoats the ink rollers used on the many presses and also grinds and refinishes the synthetic rubber rollers used on the heat-set ink presses.

The ink rollers used in this plant differ from those generally used in many commercial printing plants in that they are not completely composed of what is termed printers' glue on a metal core. The ink rollers used in McCall's have a rubber core with a comparatively thin coating of the usual composition on the



View of Production Control Board for *McCall's Magazine,* McCall Publishing Co., Dayton, Ohio. Horizontally, the board is divided into four sections, each one representing a month by days. The board is divided horizontally into an upper and a lower section. The upper section shows the state of production in terms of time. The lower section shows the state of production in terms of production instead of time. On the left side of the board numbered pegs are inserted in holes. The numbers on these pegs indicate the presses on which *McCall's* is printed. The pegs in the upper and lower sections are identical—that is, they are duplicates—thus enabling the office to keep a record of each press's production on a time basis and a production basis. White cords attached to the pegs make it easy for the eye to follow production progress on each press. Further details about operation of the board in relation to time schedules will be found in that section of the accompanying story under the heading *Production Control Board.*

outside. The roller stocks are purchased without this outside coating, so that even on new rollers the coating is done in this department.

In an eight-hour day, this department averages 150 rollers in the recoating operation.

For rollers that are to be used to distribute more than one color ink, a sectioning machine is employed with electrically controlled heaters that melt the printers' glue coating down to the rubber core. This machine is adjustable so that the roller can be split wherever desired.

Bindery, Mailing and Shipping

THIS is the department that puts the finishing touches to the vast publication jobs that are continually going through the McCall printing plant seven days a week. The man on whose shoulders rests the full responsibility for the smooth running of this department is W. H. Wagner.

The work of the bindery section of this department is lightened somewhat by the fact that 80% of the signatures for the various magazines that are handled come off the presses folded so that the bindery operation does not include folding but simply gathering and finally binding on the covers. But even with 80% of the signatures already folded there is still plenty for the bindery to do. The other 20% must be folded and all must be gathered to form the completed book.

Like all bindery operations the work here consists of folding, gathering, stitching and trimming with a final operation of wrapping in bundles for newsstand sales.

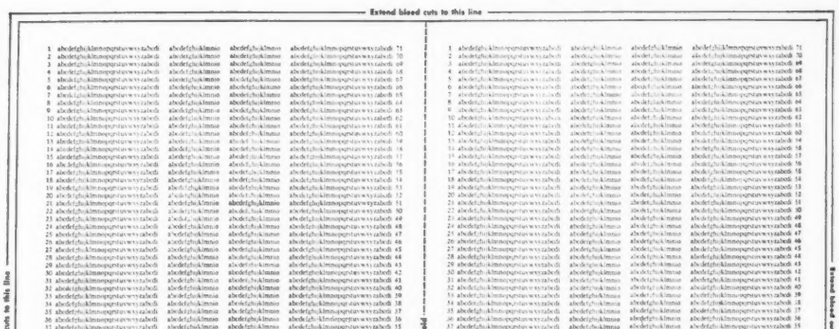
A good idea of the magnitude of the job done by this department each month can be gained from the knowledge that over 18,000,000 magazines are bound and mailed. This represents 15 different publications or over 150,000,000 signatures a month, which figure does not include the *Style News,* which runs to another 2,500,000 a month.

At the gathering machines all books are counted into a standard size stack for the trimmers thus eliminating counting at the trimmers and possible adjustments of the trimmers to take care of varying sized stacks.

Besides saving time at the trimmers, this standardization of the stacks of each magazine saves time in the mailing and shipping room since it avoids recounting there. The employees in this section know that every stack of a publication contains a fixed number of books so that making up newsstand orders becomes a comparatively easy job.

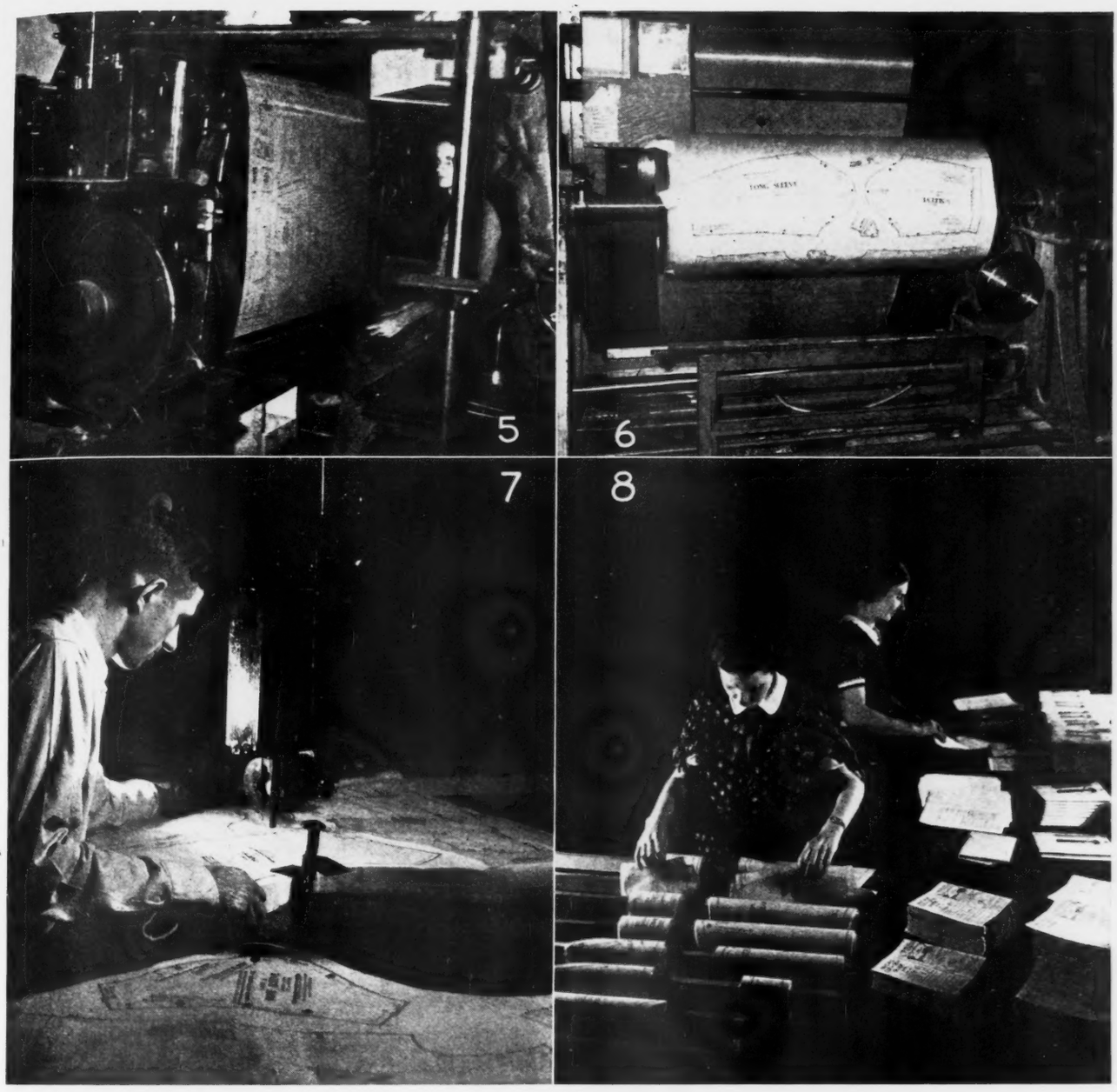
Material Control

THE McCall plant consumes enormous quantities of paper, ink and other materials. The Material Control Department managed by H. F. Barnes, is in control of paper, ink, waste paper, the unloading of all cars, the plate and ink stock room, and the paper warehouse. To Mr. Barnes falls the task of seeing that whatever is needed is available when it is needed.



Miniature Reproduction of Editorial Layout Guide — This Guide was devised by Editor Richard Levy and *McCall Spirit,* a monthly house organ which circulates among the 3500 McCall employees in different parts of the country. The original sheet shows the exact dimensions of the page outlines as well as bleed outlines for illustrations and following standard magazine practice, is printed in light blue ink.

As laid out by Mr. Levy, each line of type is numbered on each side of the page. The column outlines are arranged to permit making up either three 11 pica columns or two 17 pica columns to the page. The printer in the composing room must like this form of pasteup exceedingly well! It makes for makeup accuracy.



Views in McCall Pattern Production Division — In this division are turned out each month an average of 2 million patterns printed on tissue paper by offset. A peculiar technique has been developed in the McCall plant to facilitate production of patterns in large quantities. The pattern outlines are reproduced from original drawings developed in the company's New York offices. After receipt in Dayton, the designs are transferred to zinc offset plates. Some of the main operations are shown in these pictures.

Fig. 5—Here a zinc pattern plate is being clamped to a Scott offset press.

Fig. 6—Patterns are printed on a continuous web of tissue paper at 5400 per hr. As the patterns are printed the web is wound on the collapsible reel shown in this picture. Irrespective of the accumulatively enlarged diameter of the roll as the web is wound on the reel, one edge of each pattern is positioned in exact register with the preceding pattern. Usually, patterns are printed in lays of 250, 500 or 1000. At the end of each run a circular saw is run axis-wise of the reel to sheet the continuously wound web. The lay is then taken to a table equipped with a band saw.

Fig. 7—Here the band saw operator is cutting the sheets to follow the printed outlines of the pattern pieces. Before commencing the sawing operation, the sheets are clamped with a spring clamp visible in this picture.

Fig. 8—After the pattern pieces have been cut from the sheet as shown in Fig. 3, they are hung on racks or bars. In the instance shown in this picture, the girl is assembling a 13-piece pattern. She is trained to do this work quickly, using both hands; as each pattern is collected it is folded and placed in an envelope. The finished patterns are now ready for distribution.

The most important part of his duty is, of course, making certain that the paper needed for every publication job will be available alongside the presses on the day that the press runs start. To properly do this, he works anywhere from a month to six weeks ahead of the publication schedule. The Production Department sends to his office a schedule of what publications are coming up and when. From these reports Mr. Barnes begins to lay out a paper schedule and to check to make sure that the necessary stocks are on hand or will be on hand when the press runs start.

The paper warehouse is under Mr. Barnes's control. From this warehouse the required stocks are drawn when needed. There is an overhead crane in the warehouse for efficient handling of the paper stocks. Roll paper is stacked seven rolls high, the rolls swung into position by this overhead crane. Flat stock is stacked on skids, three skids high. And, of course, included in the paper stocks is paper for covers and inserts as well as for the books themselves. Since it is necessary to carry a large paper stock on hand to make certain that the necessary paper will be available when press runs start it sometimes happens that the warehouse is full with no available space for additional quantities of paper. When that condition is reached the paper is stacked around the printing plant itself where ever there is a little vacant space.

Apart from seeing to it that materials are available when and where needed it is also a part of Mr. Barnes's job to find out what will be needed and to turn over to the Purchasing Department a memo of such needs. Then the Purchasing Department begins to function.

McCall Spirit

LATE in the war-torn year of 1943 it was deemed advisable by McCall management to produce for its employees and people in Service a house publication. Through this publication it was hoped that contact could be maintained with McCall men in foreign countries or Service camps and it was also hoped that a more conscious and honest fellowship could be stimulated between those who were still working on the home front and management.

Publication of this book was entrusted to Richard Levy, one of the young old-timers of the McCall Corporation. It is timely to point out here that a great percentage of the Dayton workers are people who have many years of McCall employment to their credit. This in itself has been a definite factor in McCall's ability to produce first-class work and redounds to their credit in that it reflects good employee-management relationship.

McCall Spirit attained such a degree of success within the Dayton plant that the New York offices were brought into the publication with the September, 1944 issue. Through the medium of the *McCall Spirit* it has been possible, by timely features and instructional articles, to convey to one another the intricate workings of the various units within the Dayton and New York offices.

Following standard magazine practice, Mr. Levy has worked out a printed double-spread layout which can be divided into two pieces, each of which can be used for the make-up of a single page. The accompanying illustration graphically portrays the many advantages that can be incorporated into such a make-up guide.

Peg Board

informs Monotype caster when to replenish type cases

VARIOUS schemes have been devised from time to time in composing rooms containing Monotype type-casting equipment to inform the caster man that certain cases need sorting up. Carl Harner, composing room superintendent of the Egry Register Co., Dayton, Ohio, describes the system used in his plant. The system takes the form of a golf tee peg board. The system is effortless and is automatic in action.

This particular board is exactly suited to the needs of the Egry Register composing room. Composing room executives in other plants naturally would modify the dimension and scope of the board to suit their needs, especially if any of the type family series extended to 7 or 8 body sizes.

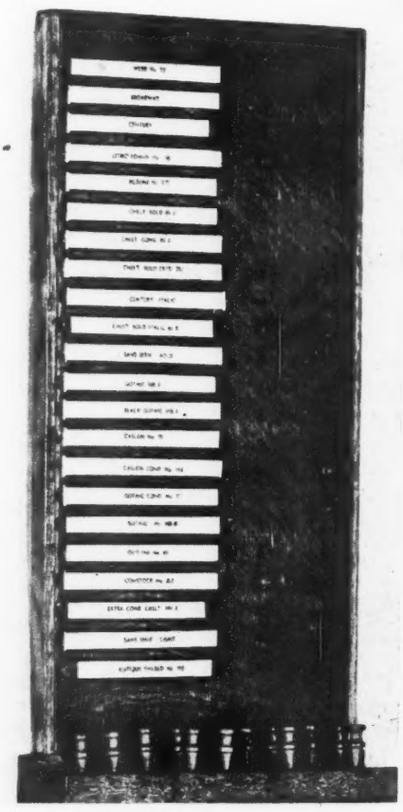
The peg board shown in the accompanying illustration is made from hardwood and measures approx. 12 in. wide by 28 in. high. Molding has been placed around the board to finish off the edge. A sill has been placed at the bottom in which holes are drilled to accommodate extra golf tees.

Twenty-two ordinary brass label holders are mounted at the left side of the board. In these holders have been slipped the names of the type faces used in the plant, such as Century, Litho Bold, Cheltenham, Gothic, Caslon, Sans Serif, etc.

At the right of each label holder have been drilled four holes in a horizontal row. These four holes represent the point sizes of each type face. The holes can be $\frac{5}{32}$ in. diam. up, depending upon the diameter of the tee shank.

When a compositor notices that one or more boxes in a type case need replenishing he goes to the peg board and inserts one of the golf tees in the hole indicating the type point size opposite the name of the type face. The Monotype caster man watches the board from time to time. In this way he can arrange his sort-casting and case-sorting operations in an orderly manner so that the cases are kept filled at all times.

And, incidentally, through the use of this peg board, Mr. Harner is relieved of detail supervisory work in connection with an important item in composing room operation.



This peg board is used in the composing room of the Egry Register Co., Dayton, Ohio, to inform the Monotype caster man when type cases need sorting.

Annual Meeting

Printing Plates Research, Inc., held its sixth annual meeting in Dayton, O., July 12 and 13 at the Dayton-Biltmore Hotel.

The present officers who were reelected for one year are: President, Joseph Schwartz, Wescott and Thomson, Inc., Philadelphia, Pa.; First Vice President, R. R. Meyers, Capital City Printing Plate Co., Des Moines, Ia.; Second Vice President, Sam Ross McElreath, Sam Ross McElreath Co., Dallas, Tex.; Secretary-Treasurer, J. Homer Winkler, Battelle Memorial Institute, Columbus, Ohio.

The A. R. Koehler Electrotype Co. of Buffalo, N. Y., was elected to membership bringing the total number of members to nineteen.

At the meeting it was decided to sponsor a license arrangement for the plastic electrotype molding process as covered by U. S. Patent No. 2,400,518.

A current research report of the project sponsored by Printing Plates Research at Battelle Memorial Institute was presented to the meeting. Dr. R. M. Schaffert and M. F. Browning reported for Battelle.

The Mort Dampener Cleaner

THE Mort Dampener Cleaner is a machine designed to clean dampening rollers for offset or lithograph presses. It is built in different sizes to accommodate various size presses, the diameter of the dampeners to be cleaned

View of Mort Dampener Cleaner. Cleans offset-lith dampener rollers. Rotating grooved cleaning rollers do the work.

having an important bearing on the size recommended.

A number of advantages are claimed by users. No adjustments need be made in operating the machine, though rollers of not too divergent sizes may be cleaned in the larger machines. A three-way friction is applied by closely grooved cleaning rollers which rotate to ease the dirt out without destroying the nap or distorting the coverings. The life of the coverings it is claimed, is increased. Manufacturer states this friction being evenly applied throughout the entire length of the rollers results in a more uniform surface and eliminates running-in time on the press.

When new coverings are put on dampening rollers they are run-in on the Dampener Cleaner to dispense with much of the loose fabric lint, to smooth out the coverings and to eliminate much time in the adjusting of dampeners on press.

Any good cleaning solvent or soap powder will serve to remove the oil and ink. A drain at the bottom of the tank makes it possible to rinse out and clean the machine. Dampeners may be rinsed after cleaning by refilling the cleaner with clean water and again running for a short time.

Further information may be obtained from Ralph H. Mort direct or through *Printing Equipment Engineer.*

Equipment for Brooklyn Press

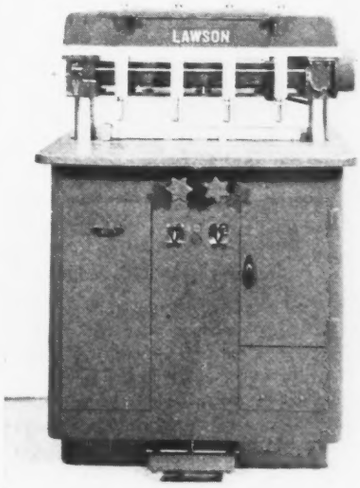
A NEW style C Kelly Press and a 40 in. Seybold cutter have been installed recently at the Brooklyn Press, 335 Adams St., Brooklyn, N. Y., announced Kenneth S. Heiberg, partner. "The plant has been growing steadily since it was established 10 years ago," said Mr. Heiberg. "This medium sized plant specializes in job work, direct mail advertising, and publication work has it's own composing room and bindery.

Kenneth Heiberg is a member of the board of directors of the Brooklyn Printer's Group connected with the NYEPA and chairman of the Advertising and Marketing committee sponsored by the group. He is also serving as a member of the Educational Committee of the New York Advertising Club, Milton Heiberg, partner, has been serving as class director at the Dale Carnegie courses, and Charles Heiberg, another partner, was formerly superintendent of Thomas B. Brooks, Inc., and Paul Overhage, Inc.

Lawson Drill Slotter

DAVID W. SCHULKIND, president of E. P. Lawson Co., announces the Lawson Multiple Head Drill Slotter. The machine drills and slots in one operation. According to Mr. Schulkind, the Lawson Multiple Head Drill Slotter can also be used for drilling round holes only, as changeovers can be made easily. The iron table is in a fixed position, and a toe-tip treadle control brings the drills down to the work.

Heads are adjustable from the front of the machine, and spindles may be adjusted vertically while the heads are in operation. Chips are automatically carried to a removable refuse box on front of machine.



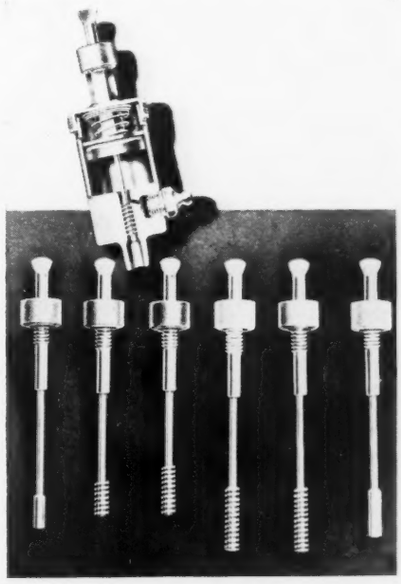
Other features mentioned by manufacturer include: fluorescent floodlight across the front of machine, giving direct illumination for setting of heads and gauges. Roller, ball or needle bearings on all working parts. The back gauge is screw operated. It rides in a V-slot and is adjustable from the front of the machine.

The new Lawson machine is available in two models: (1) For drilling round holes only, and (2) for drilling and slotting in one operation.

Gun-Fil Lubricators

MANUFACTURING rights on Gun-Fil Lubricators have been acquired by the Gray Company, Inc., it is announced by President L. L. Gray.

Designed in four sizes, with lubricant capacities ranging from ½ oz. to 8 oz. pressure filled Gun-Fil Lubricators automatically dispense oil or grease in a measured, uniform flow to a moving bearing, and stop feeding lubricant when a bearing becomes motionless.

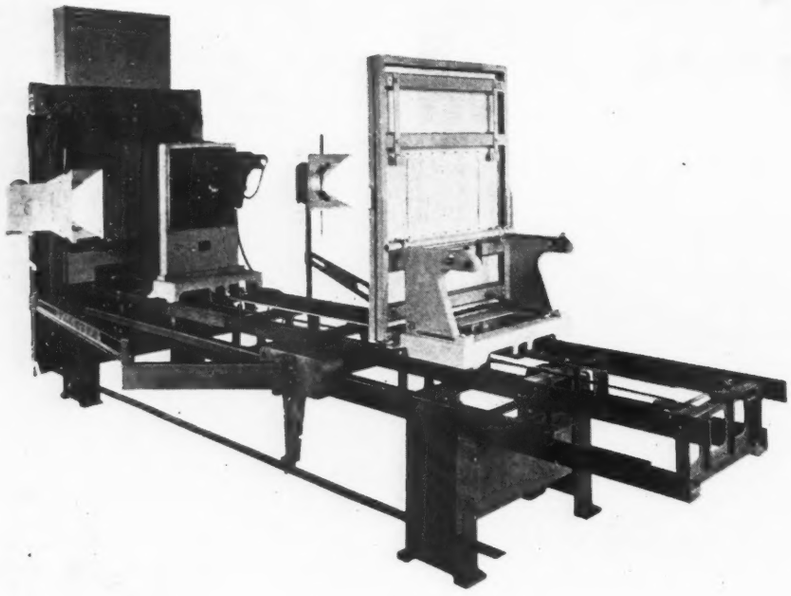


View of Graco Gun-Fil lubricator with six interchangeable valves. Each valve has colored cap indicating varying degrees of control of feed on greases of different densities.

Six interchangeable valves are available with colored caps for identification. The valves with colored caps exert varying degrees of control of feed on greases of different densities.

For information about Gun-Fil Lubricators, write the Gray Company, Inc., or *Printing Equipment Engineer* will gladly pass along your request.

ATF Purchases Valette, Inc.



View of ATF Precision Darkroom Type Color Camera.

ANNOUNCEMENT of the purchase of the production tools, inventory and goodwill of Valette, Inc., 215 W. Ohio St., Chicago, manufacturer of process cameras and offset platemaking equipment, has been made by Edward G. Williams, president of American Type Founders Sales Corporation. The acquisition does not include the motion picture projector business of Valette, Inc.

American Type Founders will continue manufacture of the complete line under its own production supervision at the same address in Chicago.

Recently, several new designs of process cameras and accessories were added to the ATF line. Late models of process cameras and accessories will be on display at the National Association of Photo-Lithographers' convention in Washington, D.C., October 3-5, and the American Photo-Engravers' Association convention at Philadelphia, October 14-16. Similar types of equipment will also be on display at the company's branch offices in Chicago and New York at an early date.

Mail Order Buying

AMERICAN Type Founders, Elizabeth, N. J., has inaugurated nationwide mail order selling of small items of printing equipment and supplies. ATF has issued a catalog of nearly 200 pages, listing approximately 1500 items of printing accessories and supplies, including type. This catalog carries descriptions of all items, with current prices, and is profusely illustrated. Instructions for ordering by mail from the nearest ATF branch are included, together with order blanks.

ATF expects to be able to give its customers faster service on small orders for type and other supplies. Price information and specifications of new items will be mailed regularly to all customers receiving the catalog.

C. D. Proctor, vice president in charge of domestic sales at ATF, said studies have been made of each item listed in the catalog and its turnover in individual branches, and the firm will make every effort to maintain adequate stocks for same-day shipments from all branches.

The new catalog is being mailed to all printers in the United States, and there will be distribution through ATF agents in foreign countries. It was explained only one catalog is being sent to each plant, but additional copies are available from ATF when needed.

Discusses Electronic Register Control[1]

ELECTRONIC register control for multicolor printing was discussed by W. D. Cockrell of General Electric's Industrial Engineering Divisions at the recent AIEE summer convention in Detroit. After outlining the problem of printing as many as five colors on top of one another on rotogravure presses speeding as fast as 1000 ft. per min., Mr. Cockrell said that the use of electronic control is a precise method for holding register to the required accuracy of a few thousandths of an inch.

The first fundamental requirement of the electronic control, he continued, is to check each printing cylinder after the first, to see if it is in the correct position to lay its impression exactly upon the previously printed one. Next, when an error has been found, it must be corrected. Since the accuracy of register must be within 0.005 in., the system must respond to signals as short in duration as one hundred-thousandth of a second.

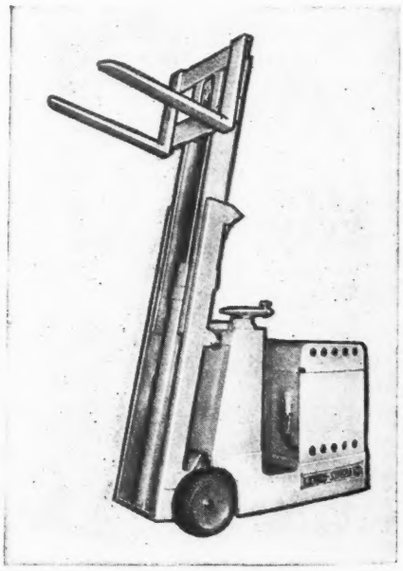
The second requirement of the electronic control is to apply power to the correcting motor, as indicated by the amount of error found. Although this can be done by other means, he said, electronic circuits eliminate moving parts which, because of the large number of operations required, would present a serious maintenance problem. Since there is no wear of critical parts when electronic control is used, Mr. Cockrell continued, the high accuracy which can be obtained will continue throughout years of untiring service.

It was said years ago, he concluded, that only one copy of a colored page in 25 was perfectly registered. With electronic register control, however, fewer than one in 25 will be found which are not accurately registered.

[1]See July 1943 issue of *Printing Equipment Engineer*, page 7, *Electronics—What It Is and What It Means to Printing Industry*, by W. D. Cockrell; also same author, Aug. 1943 issue.

4000 Lb. Capacity Electric Fork Truck

CONSERVATION of aisle width and consequent annual earnings due to increase of available storage or production space are claimed for the Lewis-Shepard 4000 lb. capacity Electric Power Fork Truck. Using a 48 in. fork and carrying a 48 in. load, this truck will



View of Lewis-Shepard's 4000 lb. capacity Electric Power Fork Truck.

enter an aisle 12 ft. wide and, in one continuous forward travel of the truck, make a single right angle turn and right angle stack, with no backing or filling, it is claimed.

Features of this Truck as claimed by manufacturer are: (1) Short turning radius and (2) Extremely low center of gravity. Inherent stability when making abrupt turns and when elevating or lowering a load are also claimed. Literature covering all mechanical and operating features may be obtained by writing to *Printing Equipment Engineer*, or to Lewis-Shepard Products Inc.

Recent Intertype Improvements*

AN improvement on which we have been working for some time and which has been given a thorough field test is our thermostatically controlled mold cooling device. Molds that are allowed to become overheated during the casting operation will cause hollow slugs. A mold that is too cold is apt to cause frosty face conditions. This new device is intended to eliminate both these conditions to a large extent.

A 1/20 h.p. motor is directly connected to the blower fan which revolves the fan at 3450 r.p.m., assuring adequate air delivery to the molds to keep them cool under the most severe casting conditions. There is the usual butterfly valve which regulates the volume of air.

Finally, there is a Fenwal thermoswitch. This thermoswitch operates under fine temperature variations and may be set to operate temperatures from minus 50 deg. to plus 400 deg. F.

We have found that a mold temperature of 218 deg. F. becomes critical under certain casting conditions. We have, therefore, adopted this temperature as the temperature at which the blower will begin delivering air to the molds. The mold cooling blower will not operate when the temperature of the mold is below this temperature.

In other words, when slugs are cast on the machine, the mold cooling device will not operate unless the temperature of the molds reaches 218 deg. F. Conversely, when the machine is not in operation or when casting is interrupted, the thermoswitch will automatically shut off the mold cooling blower.

In addition to saving current, it also prevents the unnecessary cooling of the molds. This device is automatic; it will deliver air when and if required and the delivery of the air will stop automatically when the operator leaves the machine or when casting is interrupted for any length of time.

This thermoswitch, which is essentially a circuit breaker, is located on the mold disk slide directly back of the mold disk and it is the radiated heat emanating from the molds, rather than a heat by contact, which operates it.

There is a plug connection which can be disconnected in case the mold disk must be taken out. The thermoswitch itself can be removed from the mold disk slide if desired.

Now I would like to point out how developments in the manufacture of steel and modern design of springs affect the life of matrices and this leads me to our improved First Elevator Lever Link. While this assembly is a small part of the machine and is taken pretty much for granted, it performs several critical functions.

The main function of the link is to provide a yielding connection between the first elevator lever and the first elevator slide. This yielding connection is necessary mainly to protect the lower alignment lugs or toes of the matrices during alignment. As you know, the toes of the matrices are raised against the aligning rails of the mold body by an upward movement of the first elevator slide.

The yielding action during alignment is obtained by a compression spring inside the first elevator link. The old style spring previously used was a short spring made of heavy wire and having a relatively high rate of compression. The new spring now being applied to all Intertype machines is a long spring made of a smaller gauge wire and having a relatively low rate of compression.

When operating in normal position, the old spring exerted an upward pressure of 130 lbs. on the matrix toes compared with 63 lbs. for the new spring.

Likewise, in the high alignment position No. 3, the old spring exerted a pressure of 74 lbs. compared with 60 lbs. for the new spring.

From these figures, it is evident that the new spring exerts 67 lbs. less pressure than the old spring in normal position. Also, the new spring exerts 14 lbs. less pressure than the old spring in high alignment position.

When each spring is considered by itself, the new spring has a difference of only 3 lbs. between normal and high alignment positions. This compares with a difference of 56 lbs. for the old spring in the two positions. The reduced pressure of the new spring permits the following: (1) The critical alignment lugs of the matrices will last longer. Reduction and equalization of pressure on the matrix toes will maintain correct character alignment for longer periods. (2) In spreading the matrices sidewise, the reduced friction of the matrix lugs in the mold grooves permits smoother expansion. This action reduces resistance to the spacebands and prolongs their life as well as that of the matrices. (3) The link is packed with a sponge-type grease to insure lubrication for longer periods. The grease lubricates the spring and other moving parts.

Seybold 36 in. Cutter

THE new Seybold 36 in. auto clamp cutter has been announced by the Harris-Seybold Co., according to H. A. Porter, vice president in charge of sales. This streamlined machine is reported to be the fastest, safest and most dependable small cutter yet developed by Seybold. Among the new features mentioned by manufacturer are: scientific knife action, simple knife adjustment, fully enclosed clutch and drive, fully automatic interlocking safety devices, complete illumination, spring type clamp pressure, and a revolutionary lubrication system.

The new spring type clamp pressure enables operators to quickly select one of three available pressures depending on the job to be done. Heavy duty compression springs controlled by the knife action apply steady and uniform pressure to the pile, full pressure being applied before the knife enters the pile and remaining until the knife has passed the clamp on the upstroke. The clamp mechanism operates in the same vertical plane as the clamp, eliminating any tendency of the clamp to shift and cause inaccurate cutting. Side gauges completely enclose the clamp operating mechanism to afford smooth surfaces for jogging and gauging the stock. Clamp treadle action is extremely light.

Clutch and drive gears of the new Seybold 36 in. cutter are enclosed in the base to prevent abrasive paper dust, trimmings, and dirt from injuring working parts of the machine. The clutch is readily accessible and the band type brake is located at the front of the cutting

View of streamlined Seybold 36 in. Autoclamp Paper Cutter announced by Harris-Seybold Co. New mechanical, safety and operating features are mentioned in the accompanying article.

*Abstract of address delivered by H. R. Freund, chief engineer, Intertype Corporation, before New Jersey Newspaper Mechanical Conference, June 1946.

machine so it can be adjusted without the use of tools.

Manufacturer also states a uniform 51 deg. shear, rugged knife bar, ample clamp lead and twin shear boxes facilitate clean cuts from top to bottom of any stock.

Knife adjustment enables the operator to position the knife to cutting stick quickly by using eccentrics at each end of the knife bar. The knife pull bar is in the same plane as the knife giving straight line action, with the knife following accurately through the work.

It is also announced that a built-in feature of the Seybold 36 in. auto clamp cutter is the mechanical two-hand starting device. Completely enclosed working parts, non-repeat mechanism, and safety washers insure operator safety. Table and back gauge are brilliantly illuminated.

The all-metal multiple disc clutch and drive gears operate in an oil bath.

An additional book printing plant is to be erected by Doubleday & Company, Inc., on a site recently acquired at Hanover, Pa., announces Douglas M. Black, first vice president. The new plant will supplement the production of Doubleday's main plant, Country Life Press, at Garden City, L. I. The new printing and binding facilities will be designed especially for long-run production, keeping in mind especially the needs of Doubleday's three book clubs, the Literary Guild, the Doubleday Dollar Book Club, and the Book League, as well as long-run reprint editions of the Garden City Publishing Co., a Doubleday affiliate.

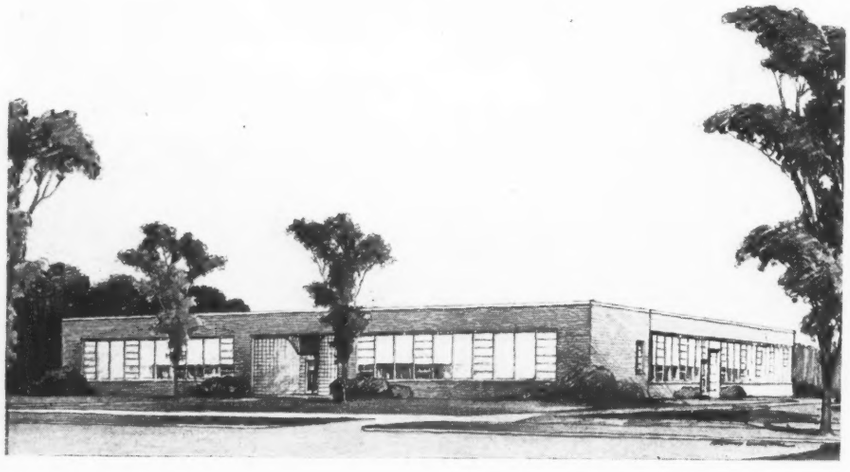
The Civilian Production Administration has granted permission for erection of the building, the application for which pointed out that wood and brick, which are among the most critical materials for use in housing projects, are not an important part of the structure.

The building (shown in miniature in the accompanying architect's sketch) will be one story in height, with concrete foundation, steel frame, glass brick and steel curtain walls. It will be 440 ft. long and 300 ft. in depth. It is being erected by the George A. Fuller Co., New York, from plans prepared by Harrie T. Lindeberg, architect.

Changes Company Name and Occupies a New Building

THE Milwaukee Saw Trimmer Corp., Milwaukee, Wis., manufacturers of saw trimmers, routers, and jigsaws, announces removal of its plant and equipment to a newly constructed factory building, at 125 West Melvina St., Milwaukee 12, Wis.

Coincident with taking occupancy of its new building, August 1, the firm became The Morrison Co., taking the name of its owner and president, George F. Morrison.



The new structure, with a floor area of 14,000 sq. ft., includes a number of new ideas to facilitate efficient operation, provide ideal working conditions, and with added equipment, will more than double present manufacturing capacity.

With a new type of continuous all welded steel framing, 50% more strength and 400% more stiffness is realized without the use of hearing walls, allowing complete flexibility of plant layout and a substantial reduction in the amount of steel required. The roof is a formed steel deck, covered with insulation, tar and gravel, and built on a dead level with provision for flooding with water for additional summer cooling.

Exceptionally large glass areas dominate the design with 70% of the wall area devoted to window. The entire factory area is accommodated with a continuous window. For each ventilating sash there are two 4 ft. by 8 ft. sheets of fixed clear glass, which admit more light and require less maintenance. Heat and glare absorbing glass is used on the south and west walls, and the office windows are thermopane (double glazed) with the glass on line with the plaster ceiling, which eliminates shadows and increases the amount of natural light into the building.

The building will be heated with steam generated by a forced draft oil burning boiler with distribution through unit heaters, each with individual thermostatis control, with automatic regulation for occupied and un-occupied heating. The office area is heated with the latest type of radiant panel heating, using continuous circulation of hot water through wrought iron pipes imbedded in the concrete floor slab. The temperature of the water is controlled by a mixing valve connected to both an indoor and outdoor thermostat.

Innovations covering day by day operations include a specially constructed office storage vault with a vertical sliding door opening the full area of the vault, giving access during working hours to records and files kept in wheeled carts which are readily moved about the office.

Need of a loading dock was eliminated through installation of an electric lift adjustable to any truck height from flush floor level. Electrical trolley strip provides continuous power contact for portable tools and the like, eliminating the need of numerous outlets.

The entire shop, office, and machinery is painted in "Color Dynamics" providing harmonious color combinations to promote pleasant, safe, and efficient working conditions.

With the added facilities The Morrison Co. has high hopes of a constant improvement in time required for delivery of machines of its manufacture.

Mechanical and production executives are invited by the editor to write a letter giving information about any mechanical or production improvements in their plants.

WHERE DO YOU THINK YOU'RE GOIN' — TO ALASKA? — WHY MONTREAL WEATHER IS SUPER RIGHT NOW! — DUMP THAT WINTER APPARATUS AND BRING YOUR GOLF CLUBS!
?
To MONTREAL
GORDON MOORE

27th Annual Craftsmen's Convention, Montreal, Sept. 8-11

Cellulose Gum—A New Desensitizing Gum

By DR. PAUL J. HARTSUCH*

**Research Chemist, Armour Research Foundation, Chicago, Ill.*

THE research department of the Lithograph Technical Foundation, in cooperation with Armour Research Foundation, has been experimenting with cellulose gum as a substitute for gum arabic in lithography. After extensive laboratory and plant tests, cellulose gum has been proved to be superior to gum arabic in desensitizing power. In addition, it has many other practical advantages.

Cellulose gum is one name for the sodium salt of carboxy-methylcellulose. This gum has been known since 1918, but its application to lithography is quite recent. It is manufactured by the Dow Chemical Co., Midland, Mich., under the trade name of "Carboxymethocel-S", and by the Hercules Powder Co., Wilmington, Del., under the trade name of "CMC". It is manufactured from cotton linters or wood.

Many of the advantages of cellulose gum over gum arabic are due to its greater desensitizing action on lithographic metal plates. When plates are properly etched with solutions containing cellulose gum, gummed up with cellulose gum, and run on the press with cellulose gum in the fountain solution, the greater desensitizing effect which it produces has resulted in the following practical advantages:

1. Cellulose gum is effective in keeping halftone shadows and fine reverse lettering open, without the use of an excessive amount of acid in the fountain solution. Albumin plates etched and gummed with cellulose gum solutions have been rolled up solid with a hand roller and then cleaned with water twenty times. Under this treatment, the heavy halftones on these plates filled up far less than identical halftones on plates treated with gum arabic. The gum arabic plates in addition showed overall scum after 10 to 16 cycles of rolling up solid. Experimental press runs also led to the same conclusion. In these press runs, the press plate was split. Half of the plate was etched with a cellulose gum etch, and gummed with cellulose gum solution. The other half of the plate was etched with a gum arabic etch and gummed with a gum arabic solution. The two plates were run side by side on the press, using only tap water in the fountain. After a few sheets were run, the dampers were removed, and the plates allowed to roll up solid. Then they were cleaned with water, and a few more sheets printed. This constituted one cycle. In one such run, the plates were rolled up solid through 30 cycles. The gum arabic plate showed considerably more filling up in the heavy halftones than did the cellulose gum plate. In addition, the overall scum on the gum arabic plate was much worse than on the cellulose gum plate.

2. Since relatively little acid is required in the fountain solution in order to keep cellulose gum plates running clean, plates seldom fail due to sharpening of the image. Many albumin plates have been run in Chicago lithographic plants for 50,000 to 115,000 sheets, with less sharpening than is usually obtained with gum arabic plates.

3. Cellulose gum keeps all types of forms running clean with a very small amount of water on the plates. Several pressmen have remarked that their plates look almost dry while running on the press.

4. Since plates treated with cellulose gum run clean with a minimum amount of water, less water is emulsified in the ink. This results in improved tone and color values, and allows the ink to dry faster on the paper.

5. If a plate etched with cellulose gum solutions and gummed with cellulose gum happens to catch up on the press, it cleans up quickly when water is applied.

6. Cellulose gum reduces blanket scum. This is strikingly apparent when split plates are run on the press, one of which has been treated with cellulose gum and the other with gum arabic. The area of the blanket in contact with the gum arabic plate always shows more scum than the area in contact with the cellulose gum plate.

7. Cellulose gum helps to prevent the "counter-etching" of the first color onto the second plate, on a two-color press. In the experimental work on cellulose gum in Chicago lithographic plants, many of the plates were run on the second unit of a two-color press. Most of these experimental plates ran satisfactorily, with little trouble due to counter-etching, after the fountain solution had been adjusted with the proper amount of acid.

8. Where plates are rolled up in platemaking and in proving, those treated with cellulose gum look cleaner than those treated with gum arabic.

Cellulose gum has many other advantages over gum arabic or any other known desensitizing agent. Some of these are:

1. A cellulose gum solution is superior to gum arabic for the gumming of plates in platemaking or on the press. The danger of gum streaks is minimized because

the gum has little tendency to adhere to the work areas. Platemakers and pressmen are almost unanimous in their approval of cellulose gum for this purpose.

2. Cellulose gum solutions are easy to make. When hot water is used, and the gum is added slowly, with rapid stirring, solution of the gum is obtained in 2 hr. or less.

3. Cellulose gum solutions do not require filtering before use. Cellulose gum is a manufactured chemical and is not contaminated with woody and foreign material as is gum arabic.

4. Cellulose gum solutions do not sour. Occasionally, upon long standing, molds will grow in them. Even mold growth can be prevented by the addition of ⅛ to ¼ oz. of phenol per gal. of solution. Solutions which are used within a week or two should require no preservative, especially if stored in stoppered bottles. Solutions of cellulose gum have been stored at the research laboratory of the Lithographic Technical Foundation for over four months with no preservative added.

5. Solutions of cellulose gum never become "stringy". Certain cellulose gum etches will form a weak gel, but the gel is easily broken up upon shaking the solution and the resulting solution is smooth and free-flowing.

6. Cellulose gum solutions are somewhat cheaper to make per gallon than are gum arabic solutions. From 6 to 8 oz. of the low viscosity type of cellulose gum are sufficient to make one gallon of solution. This gives a 4 to 6% solution of cellulose gum, which is as viscous as a 25 to 28% solution of gum arabic (about 12 deg. to 14 deg. Be gum arabic solution). Thus, although cellulose gum costs from 70c to 80c per pound, a gallon of solution costs from 25 to 35%, compared with about 60c for a gallon of 12 deg. Be gum arabic, figuring gum arabic at 30c per lb.

7. Cellulose gum is an American manufactured product and its use in lithography will free the industry from dependence upon a foreign source of supply for a desensitizing agent.

8. Gum arabic and cellulose gum are compatible. Plates etched and gummed with cellulose gum can be run on the press with gum arabic in the fountain solution, or plates etched and gummed with gum arabic solutions can be run on the press with cellulose gum in the fountain solution.

Cellulose gum is available in low, medium, and high viscosity grades. Only the low viscosity grade is suitable for lithographic use. Special batches of low viscosity cellulose gum are being selected by the Hercules Powder Co. and the Dow Chemical Co. to meet the particular requirements of lithographers, and fulfill specifications worked out at the research laboratory of the Lithographic Technical Foundation.

At present the Hercules Powder Co. and the Dow Chemical Co. are producing only limited quantities of cellulose gum. However, these companies are attempting to supply lithographers with 10 to 50 lb. batches. Several companies which have cooperated with the Lithographic Technical Foundation in the testing of cellulose gum are using it continuously on one or more presses, and are planning to convert to it as soon as it is available in quantity. Readers of this magazine will be kept informed as to the availability of cellulose gum.

Cellulose gum solutions do not desensitize unless they are acidified. About 1/5 fl. oz. of 85% phosporic acid should be added to each gallon of gum solution. As this is a very small amount of acid, it is advisable to make a phosphoric acid stock solution, using 3 fl. oz. of 85% phosphoric acid in one quart (32 fl. oz.). Then add 2 fl. oz. of this stock solution to a gallon of cellulose gum solution. Such an acidified solution of cellulose gum is approximately as acid as a gum arabic solution, and has a pH of 4.1 to 4.5. It is used for the gumming of plates, and for the preparation of cellulose gum etches.

Work is still progressing at the LTF research laboratory as to the best formula for a cellulose gum etch and fountain solution. In general, cellulose gum may be substituted for gum arabic in most etch formulas. Etches containing chrome alum or aluminum salts should be avoided. A simple cellulose gum, phosphoric acid, ammonium bichromate etch has been employed in most of the experimental plant runs. Recent experiments have indicated that certain "white etches" containing cellulose gum are superior to a bichromate etch, and it may be possible to eliminate bichromates entirely in plate and fountain etches.

If a press is equipped with a brass water roller, the brass roller seems to grease up faster when the fountain solution contains cellulose gum than when the fountain solution contains gum arabic. Various fountain etch formulas are being investigated at the LTF laboratory to find one which will overcome this trouble. In the meantime, it is recommended that the brass roller be cleaned daily when cellulose gum fountain solutions are used. No trouble has been experienced with aluminum water rollers.

The use of cellulose gum in lithography shows promise of reducing costs, increasing production, improving the quality of the work, and, in general, reducing the number of troubles which beset the lithographic plate maker and pressman. These advantages will be most significant when complete specifications for its use for optimum results are worked out.

Paper Problems

IN the final analysis the printer is not a manufacturer but a converter who takes types, plates, ink, paper and presses supplied him and with the highest type of craftsmenship converts these supplies into what has become a universal need since the day when the first few precious Bibles were chained to the pulpits of the cathedrals, in the dark days of the Middle Ages.

Of course comparatively few printers make practically all of their supplies: ink, type, rollers, paper, photographs, plates and even presses but the great majority rely on others for these supplies. One of the most important is paper. It is one of the principal items of cost in many jobs and if not up to par can probably cause the most trouble.

The pressroom being the heart of production, running schedules must be lived up to since estimate and delivery are both based on press performance.

With these time limits never forgotten the printer buys brands of paper with a reputation for reliability in running through the press and functioning throughout the process without causing delays or shutdowns.

But along comes a skid with a hump in the paper or perhaps a dished top, either of which may prevent the automatic feeder from functioning, at least without frequent "trips" which affect the register and the uniformity of inking throughout the run. Sometimes, by inserting wedges in the edges in the pile of stock in the feeder table these faults may be coped with.

Sometimes shooks are inserted at the mill to level out the pile. The appearance of the skid load is improved but this means nothing to the printer because when the paper is used down to the shook, the pressman has to shut down the press, lower the lift under the skid, pull out the shook and raise the lift in adjustment with the feeder. Generally some adjustment of the feeding apparatus is made necessary. Such faults in paper may in the total cause tremendous loss of production in a large pressroom.

Some curling and waving of paper is caused by atmospheric conditions in the print shop but some stems from the paper mill. Other exasperating and costly faults in paper are caused by calendar cuts, clay lumps, pin holes in the sheet, plasters, torn sheets and wrinkles.

Heretofore, most of the research on paper had been directed on its printability, that is, how it received ink from the form, how much ink and makeready it needed, how the print looked and how rapidly the ink dried on it to facilitate further operations. These are important qualities but not as important as its uninterrupted smooth travel through the press on schedule, particularly on high speed flatbed and sheet-fed rotary presses.

With the coming of more uniform paper making materials, the progress of research and careful and precise workmanship it will be possible to make paper that will run not only through roll-fed but also through sheet-feed presses without difficulty or slow down and shut down.

EXECUTIVE ¶s

P-Double-E's Eastern Representative

William L. Osborn is *Printing Equipment Engineer's* new Eastern representative. He succeeds Russell Birchfield who served in that capacity for some time.

Printing Equipment Engineer's Eastern office is at 509 Fifth Ave., New York 17, N. Y. Phone number is Vanderbilt 6-0890.

Mr. Osborn will give friendly and courteous attention to the wants of anyone in the eastern territory. Just get in touch with him either personally, by mail or phone at the address given above.

Herman A. Slater, formerly a graphic arts research specialist for American Type Founders has joined the Chas. E. Brown Printing Co., 701 Central St., Kansas City, Mo. as production manager. Mr. Slater is chairman of the Research Commission, International Association of Printing House Craftsmen. He is also a director and treasurer of the National Association for Printing Education and a member of NGAEA. Having written many technical articles relating to the Graphic Arts field, Slater, as associate editor of *Printing Equipment Engineer*, has contributed articles on presswork and plant production of interest to printing executives. He recently became a member of the American Institute of Graphic Arts.

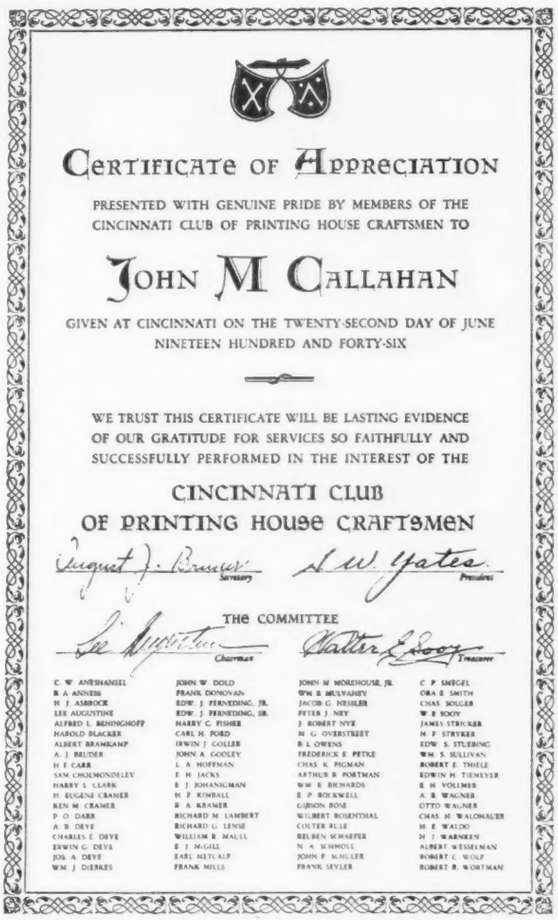
Paisley Products, Inc., manufacturers of adhesives, announces that Jack F. Sequin has been made representative in Oklahoma and Texas. According to Earl C. Lenz, sales manager of the Chicago Div., the southwestern headquarters are at 1410 Main St., Dallas 1, Tex.

Clifton N. Bradley has resigned as vice chairman of the Board of Directors and chairman of the Administrative Committee of R. Hoe & Co., Inc., but remains as a director, Joseph L. Auer, President of the company, announced recently. Mr. Auer has been appointed to succeed Mr. Bradley as chairman of the Administrative Committee. In announcing that the resignation had been accepted "with deep regret", Mr. Auer said: "Mr. Bradley has now asked to be relieved of the heavy responsibilities of his executive posts. The management expresses its keen appreciation for Mr. Bradley's efforts in behalf of the company and its shareholders." Mr. Bradley is a partner in the investment securities firm of Carret Gammons & Co., New York.

Doyle O. Etter, chemical engineering graduate of Ohio State University, has joined the staff of Battelle Institute, Columbus, O., where he will be engaged in research in the graphic arts. Mr. Etter is a member of Tau Beta Pi, honorary engineering society.

Fred E. Lidington, Philadelphia branch manager of the Fuchs & Lang Div., Sun Chemical Corp., died recently at Fort Lauderdale, Fla., where he had made his home since his retirement several months ago. Born in Canada, Mr. Lidington entered the lithographic industry in 1885 and served with firms in the United States and Canada. He joined the F & L organization in 1926, as a sales representative and later became manager of the company's Philadelphia Office.

I. T. McQueeney, formerly superintendent of the Columbus (O.) *Dispatch* photo-engraving department, was appointed mechanical superintendent of the *Dispatch* early in July.



CERTIFICATE OF APPRECIATION

PRESENTED WITH GENUINE PRIDE BY MEMBERS OF THE CINCINNATI CLUB OF PRINTING HOUSE CRAFTSMEN TO

JOHN M CALLAHAN

GIVEN AT CINCINNATI ON THE TWENTY-SECOND DAY OF JUNE NINETEEN HUNDRED AND FORTY-SIX

WE TRUST THIS CERTIFICATE WILL BE LASTING EVIDENCE OF OUR GRATITUDE FOR SERVICES SO FAITHFULLY AND SUCCESSFULLY PERFORMED IN THE INTEREST OF THE

CINCINNATI CLUB OF PRINTING HOUSE CRAFTSMEN

August J. Bremer, Secretary — A. W. Yates, President

THE COMMITTEE

Chairman — Walter E. Sooy, Treasurer

C. W. ANSHANGEL, B. A. ANNESS, H. J. ASBROCK, LEE AUGUSTINE, ALFRED L. BEDINGHOFF, HAROLD BLACKER, ALBERT BRAMKAMP, A. J. BRUDER, H. E. CARR, SAM CHOLMONDELEY, HARRY L. CLARK, H. EUGENE CRAMER, KEN M. CRAMER, P. O. DARR, A. B. DEYE, CHARLES E. DEYE, ERWIN G. DEYE, JOS. A. DEYE, WM. J. DIERKES, JOHN W. DOLD, FRANK DONOVAN, EDW. J. FERNEDING, JR., EDW. J. FERNEDING, SR., HARRY C. FISHER, CARL H. FORD, IRWIN J. GOLLER, JOHN A. GOOLEY, L. A. HOFFMAN, E. M. JACKS, E. J. JOHANIGMAN, W. F. KIMBALL, B. A. KRAMER, RICHARD M. LAMBERT, RICHARD G. LENZ, WILLIAM E. MALLI, E. J. McGILL, EARL METCALF, FRANK MILLS, JOHN M. MOREHOUSE, JR., WM. B. MULVANEY, JACOB G. NEISLER, PETER J. NEY, J. ROBERT NYE, M. G. OVERSTREET, B. L. OWENS, FREDERICK E. PETKE, CHAS. S. PIGMAN, ARTHUR B. PORTMAN, WM. E. RICHARDS, E. P. ROCKWELL, GIBSON ROSE, WILBERT ROSENTHAL, COLTER RULE, REUBEN SCHAEFER, N. A. SCHMOLL, JOHN F. SCHULER, FRANK SEYLER, C. P. SMEGEL, ORA E. SMITH, CHAS. SOLGER, W. E. SOOY, JAMES STRICKER, H. F. STRYKER, EDW. S. STUEBING, WM. S. SULLIVAN, ROBERT E. THIELE, EDWIN H. TIEMEYER, E. H. VOLLMER, A. R. WAGNER, OTTO WAGNER, CHAS. H. WALDMAUER, H. E. WALDO, H. J. WARNEKEN, ALBERT WESSELMAN, ROBERT C. WOLF, ROBERT B. WORTMAN

The Cincinnati Club of Printing House Craftsmen honored one of its members for outstanding service to the printing industry when it presented a Certificate of Appreciation, reproduced here in miniature, to John M. Callahan on June 22. The presentation ceremony was on the program of the annual banquet of the Fifth District Conference, International Association of Printing House Craftsmen, held in Cincinnati.

Mr. Callahan, secretary of the U. S. Printing and Lithograph Co. of Norwood and manager of its Western Division, has served the printing industry in many official capacities. On June 30 he rounded out 10 years of service as treasurer of the Cincinnati Club, having declined to run again for the office. He has served the club three times as president, and served twice as president of the International Association of Printing House Craftsmen. He has been chairman of two Fifth District Conferences and was general chairman of the International Convention held in Cincinnati in 1935.

The Cincinnati Club, in addition to presenting the Certificate of Appreciation, honored Mr. Callahan with gifts which included a desk pen set, brief case and floor fan

John F. Devine, President, General Printing Ink Division of Sun Chemical Corporation, announces that Ralph C. Persons has succeeded Arthur S. Thompson as General Manager of the Geo. H. Morrill General Printing Ink Div. Mr.

Ralph C. Persons, new manager, Geo. H. Morrill General Printing Ink Div. of Sun Chemical Corp.

Thompson, who resigned on July 15, is at present on leave of absence and on his return will be associated with the company in another capacity. Mr. Persons, who has been with General Printing Ink since May, 1944, has served as sales manager of Geo. H. Morrill and general manager of Eagle Printing Ink. Prior to Mr. Persons' association with General Printing Ink, he was an executive of the Huber Company for a decade. In the years preceding his employment by Huber, Mr. Persons was actively engaged in the various departments of both newspaper and commercial printing plants.

ATF Reorganization

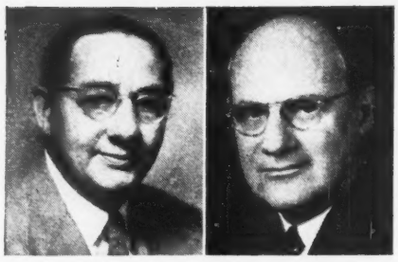
Thomas Roy Jones announced in July that ATF Incorporated, will be the new name of American Type Founders, Inc., Elizabeth, N. J., and that the concern hereafter would function almost solely as the holding company for the various interests in the ATF group.

Mr. Jones, who has been head of the company 14 years, is president of the new

T. R. JONES
Chairman

E. G. WILLIAMS
President

parent firm and will be board chairman of the associate companies. His announcement stressed that the reorganization move involves no change in the general management picture at ATF and that the principal reasons for it were "the business of the company and wholly-owned associates is more diversified than in the past and is no longer concentrated upon the manufacture of printing presses, types and related materials alone."



L. E. PLENINGER
Vice President
Export Sales

C. D. PROCTOR
Vice President
Domestic Sales

Associate companies of ATF Incorporated are American Type Founders, Inc., at Elizabeth, N. J., manufacturers of printing presses, type and printers' supplies; American Type Founders Sales Corp., handling sales of American Type Founders' products with headquarters at Elizabeth; Frederick Hart & Co., Poughkeepsie, N. Y., manufacturers of sound recording devices; Daystrom

J. E. WEBENDORFER
Vice President

J. E. MARTIN
Vice President

Laminates, Inc., Daystrom, N. C., manufacturers of hardwood plywood products; and Daystrom Corporation, Olean and Friendship, N. Y., manufacturers of tubular steel and plywood furniture.

The change in name was authorized at the annual stockholders meeting of American Type Founders, Inc., at which four directors were re-elected. These are: Joseph A. Brophy, president of J. P. Brophy Coal Co., Inc., Elizabeth, and member of the New Jersey board of public utilities commissioners; Henry W. Dodge, chairman of the board of Air Products, Inc., New York, N. Y.; Clinton S. Lutkins, senior partner of R. W. Pressprich & Co., New York, N. Y.; and Raymond D. McGrath, retired. These men, along with the following directors, compose the board of the new ATF Incorporated: Frank C. Ferguson, president of the Hudson County National Bank, Jersey City; Albert W. Finley, president and treasurer of George H. Ellis, Inc., Boston; Thomas Roy Jones; Lewis W. Trayser, vice president of Curtis Publishing Co., Philadelphia; George M. Wells, consulting engineer; H. Eugene Wheeler, vice president and treasurer of N. W. Ayer & Sons, Inc., Philadelphia; and Edward G. Williams, vice president of ATF Incorporated.

The directors have elected as officers of the new company, in addition to Mr. Jones and Mr. Williams: Paul M. Dollard, vice president and treasurer; Frederick B. Heitkamp, vice president; Joseph L. Conley, secretary; and George S. Tiernan, assistant secretary and assistant treasurer.

Auction Successful

The Book Auction sponsored by the Los Angeles Club of Printing House Craftsmen in June was successful. A total of 155 books were contributed to the auction by members and friends of the Craftsmen's Clubs throughout the country. Exactly $635.50 was bid in for the books. It is believed this is the highest amount yet realized from an auction of this sort.

Craftsman Ray Fisher, first vice president of the club, acted as chief auctioneer. Bunny Edmonds, Lee Farmer and Robert Kerr of the Los Angeles Club; W. H. Griffin of the San Francisco Club; and Judson Bradley of the Citrus Belt Club were guest auctioneers.

President Robert H. Kerr appointed Craftsman Perry R. Long overall chairman of the auction.

The Naval Ordnance Development Award was presented to Intertype Corporation "in appreciation of distinguished service to naval ordnance development" at luncheon ceremonies in Brooklyn recently.

This award, granted by Rear Admiral G. F. Hussey, chief of the Bureau of Ordnance, is the highest honor that the Ordnance Department awards for industrial development.

President Neal Dow Becker of Intertype received the award for the corporation, granted for work in research and development and tactical testing of secret apparatus of high importance to the Navy.

Individuals receiving special certificates of award are, left to right: W. W. Mount, inventor; D. L. Anderson, assistant chief engineer; S. J. Medlar, production engineer; L. Biesterfeld, experimental engineer; G. W. Allan, assistant chief engineer; A. T. Mann, Jr., vice president and officer-in-charge of the project; and H. R. Freund, chief engineer.

Lighting has made seeing tasks effortless in daily newspaper composing room — Ventilation helps greatly with comfort and productivity

By WILLIAM D. McCAULEY *

*Composing Room Superintendent, Mason City (Ia.) Globe-Gazette.

LIGHTS and more lights—plus proper ventilation—are the keys to the modern composing room. In the Mason City (Ia.) *Globe-Gazette* composing room as well as in other departments of the 3-edition daily these keys have unlocked the door to production problems which are general to most newspapers.

Many production managers and superintendents in the last few years have become cognizant of the handicaps under which printers were working. And they have been stressing the importance of good lighting facilities and proper ventilation as a direct means to achieve desired efficiency and better working conditions. The *Globe-Gazette* has met the challenge posed by increased output and is supplying its composing room employes with the needed factors to bring out the best possible skill.

But it isn't just a case of supplying light. A scientific approach to the problem is a prime requisite. Many of us remember the old spotlighting employed in composing rooms which meant glare and shadows. Under alternating conditions such as too much and too little light the pupils of the eyes contract and expand. Many of the compositors working under those conditions are now wearing glasses.

Nature intends that the eyes take a few seconds to adjust themselves to poor lighting since conditions are not constant. Precious seconds are thus lost. This problem of eyestrain has been eliminated. Light on the floor has been increased from 6 foot-candles under the old incandescent lights to 55 foot-candles under the new fluorescents. In the past approximately 3600 watts were furnished under spotlights. Now the room, with measurements of 45 ft. width, 65 ft. length and 25 ft. height, is furnished with 5760 w. under the flood system.

In each unit installed there are 4 bulbs of 40 w. each, generating 160 w. Thirty-six units have been hung from the ceiling at a distance of 10 ft., 8 in. from the floor and are spaced 8 ft. on center, producing the ideal lighting condition. Under the old system, approximately 6 foot-candles were registered on the meter. Now the reading shows 55 foot-candles.

Printers after a few weeks under the modern lights are enthusiastic in their praise for the lights which do not throw shadows but which have increased their efficiency with less energy required. Previously it was a common occurrence to observe compositors squinting, walking around forms to gain the best seeing advantage, and bending close to the type. Obviously, it is apparent that they now have little if any difficulty reading type under any conditions. At the end of the day when peak efficiency is normally past, mistakes and other mechanical flaws are rare. The men look and feel refreshed although they have been under 8 hours of speed strain.

Ventilation has also come in for attention in the new program here. Three ventilating grills in the ceiling now change the air every 2 min. This aids in cutting down fatigue. Germs which are ever present when stale air is manufactured are sucked away from the body and it is expected that absenteeism due to colds will be considerably reduced, particularly during the winter months when windows cannot be opened to any extent.

These are the contributions which the employers of the Mason City *Globe-Gazette* have made to labor in which they are placing their confidence in the hope that they may be a part of a better world in which to put out a better newspaper under modern conditions.

Tight Paper May Cause Tint In Offset-Lith

When the water supply in offset-lith is out of balance, trouble is likely to occur. A very tight sheet may be so water-repulsive that the moisture builds up on the blanket until the excess is added to the water on the plate. The excess of water on the plate works its way back into the ink. If this is allowed to continue, the oil and water emulsion is converted into a water and oil emulsion which tints and stains the sheet.

$2000 Printing Scholarship

James A. Crawford, President, Printing Industries of Philadelphia, Inc., has announced that Private Aaron Spiegle, son of Mr. and Mrs. Gilbert Spiegle, 2851 West Oakdale St., Philadelphia, has won the first four year annual scholarship to the Carnegie Institute of Technology, College of Engineering, Department of Printing. The award, which has a value of $2000 was presented recently by Raymond Blattenberger, Chairman of Printing Industries' Scholarship Committee at the commencement exercises of the Murrell Dobbins Vocational School, where 1600 persons were present.

Partial View in Composing Room of the Mason City, (Ia.) ***Globe-Gazette*** —The room is 45 ft. wide, 65 ft. long with 25 ft. ceiling height. Thirty-six units have been hung at a distance of 10 ft. 8 in. from the floor spaced 8 ft. in center. Light meter reading indicates 55 foot-candles.

Air *utilized in various ways in manufacture of offset-lith presses and other Graphic Arts equipment at Harris-Seybold Co.*

By STAFF WRITER*

**Compressed Air and Gas Institute, Cleveland, Ohio.*

HARRIS-SEYBOLD Company, maker of offset printing presses, Cleveland, is an air-minded manufacturer using compressed air for production purposes. This company is said to be the first to develop a completely air-fed printing press. Over the past halfcentury Harris has continued its development of automatic feeding devices.

The company rates the press feed as one of the most important factors to a printer. Both air suction and air pressure are used in the automatic feed on all presses manufactured by Harris. Suction is used for separating the top sheet from the pile and the air pressure is used to force a volume of air under the top sheet to assist in forwarding the sheet to the feed board in the printing mechanism. A double pressure pump on the machine supplies air and vacuum. Fast operation and the lack of special adjustments makes air preferred for feeding operations, according to C. W. Harrold, chief engineer.

Wartime production at the Cleveland plant included peacetime products adapted to war needs. The company's offset presses were used to print battle maps and other data at the front lines. Specially designed presses, a large number of which were mounted on trucks for portability, were in use in all war theaters. The company also filled important contracts for the Navy.

Compressed air is used in several manufacturing steps on the offset presses as well as in the finished product and is one of the production aids the company will rely on in meeting the printing industry's ever-increasing number of orders for sorely needed equipment.

Air lines serve virtually every work bench and machine at the plant. A typical scene is Fig. 1 where an air-operated drill is being used to drill a hole in an inker frame. Tools such as these are used for reaming, tapering, drilling and similar work, Mr. Harrold explains, because of handling ease and the fact that no harm is done when the operation sticks or stops.

However, it is not only for light, quick work that compressed air is employed in the manufacture of offset presses. Fig. 2 shows an air hoist lifting a 1200-lb. casting—side frame for a lithographic press—to a radial drilling machine. The fast-operating hoist is ready for instant service at the machine.

Sandblasting is another job which can be done by compressed air. Fig. 3 shows a worker cleaning up press delivery wheels with air which comes from the same air lines powering light tools. or the spray guns for painting parts coming down the assembly line to the paint booth.

Compressed air for the plant is supplied by two motor-driven, two-stage air compressors, each of 650 cu. ft. per min. capacity. Air lines serve every working area. The everyday application of this power to offset press manufacture has made the plant engineers aware of its possibilities when unusual problems arise, for example in making a stamp perforating machine for the U. S. Bureau of Engraving and Printing.

Among the Bureau's many machines are those made at the Cleveland plant to punch out 3,000,000 holes a minute in sheets of postage stamps. At that rate, the rotary machine is perforating 100,000 stamps or 250 sheets of stamps a minute. Mechanical marvels which do things like that usually are complicated affairs and no exception is the stamp perforator with its photo-electric eyes to control the whirling mechanism, almost human in automatically handling several different operations.

One of the last obstacles to perfecting this machine was not in some involved phase of mechanical engineering. On the contrary, it was the relatively simple one of putting perforating pins straight in the perforating bars. Pushing and tapping them, as was first attempted, tended to cause slight misalignment. A study of the head of one of these machines in Fig. 4 will show the importance of true alignment. The pins in the upper cylinder must meet exactly with counterpart holes in the lower cylinder of the cross perforating head. There are 247 pins to a bar and 44 bars to a cylinder Everyone of the 10,868 pins in the cylinder must be truly spaced one to another.

A device utilizing compressed air solved the problem With this pin-inserting press, the operator drives each pin into its hole exactly alike As the hand lever is pulled down, a compressed air-actuated clamp at the base comes down to hold the pin straight during insertion Chief Engineer Harrold explains that with compressed air the pressure is always the same and all the pins are inserted uniformly.

Data and photos for this article were obtained by the Compressed Air and Gas Institute through the courtesy of Harris-Seybold Company.

When Coated Paper Picks

Frequently the addition of a good ink conditioner will reduce the tack to cope with picking. Some place the burden on the paper maker, saying he should increase the pick resistance. Caution here is needed because there is a limit since the best halftone printing is produced on a mellow and comparatively soft coating.

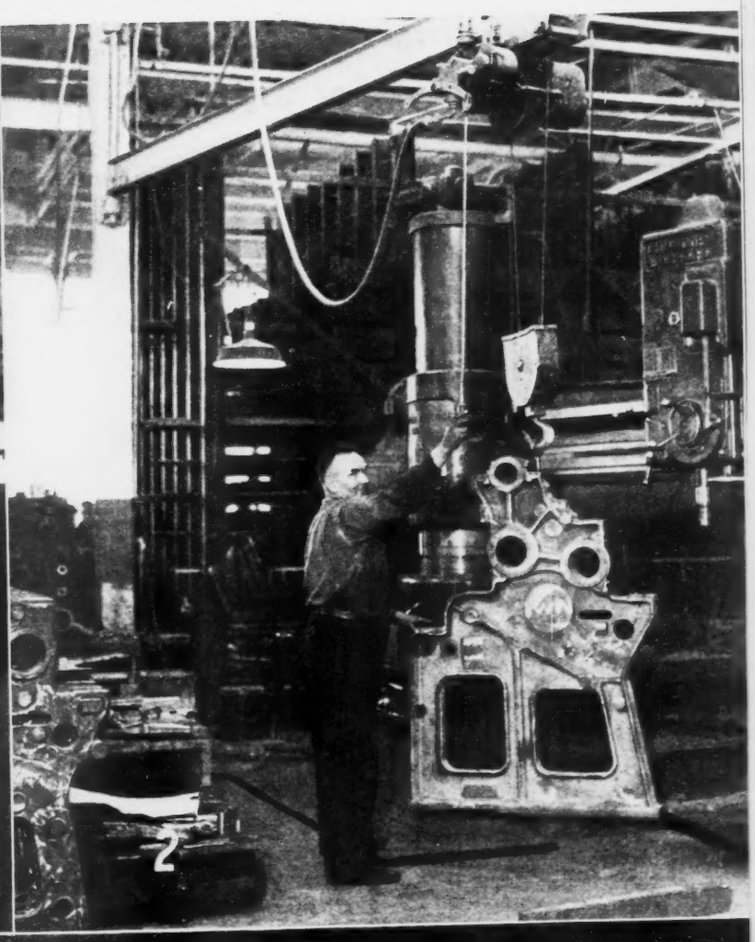
An ink may dry too fast on the press and cause picking before the cause is determined. Again a good ink conditioner will relieve the trouble.

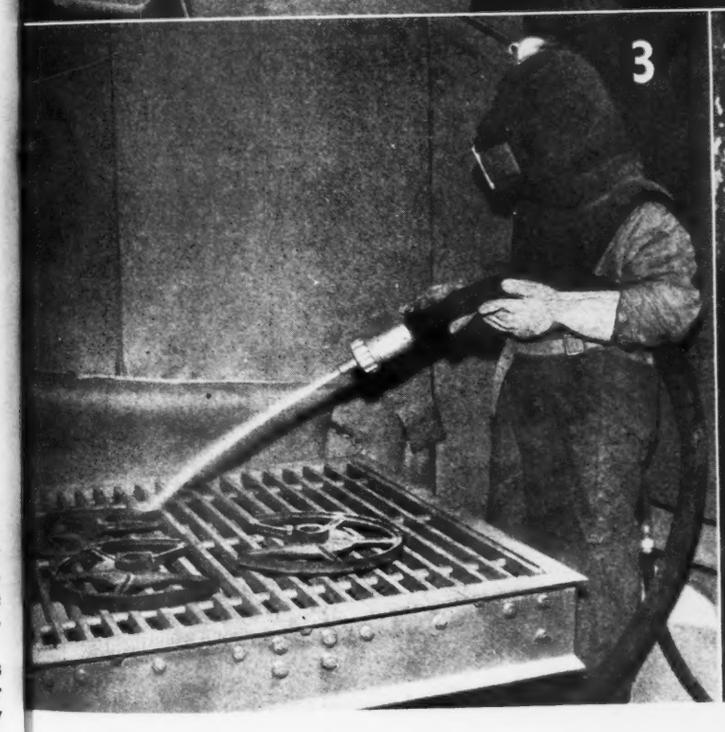
Why should a modern ink dry too fast on the press? If an ink is made for summer use when the humidity is high it is formulated to dry in spite of the excess moisture in the ink, the air and the paper. If perchance the ink is not used until cold weather and artificial heating arrives with low humidity it is likely to dry too fast on the press.

Harris-Seybold Calendar

The Harris-Seybold Calendar for 1946-47, the seventh in a series of lithographed calendars featuring subjects by artist T. M. Cleland, is now being distributed, according to H. A. Porter, Vice President in Charge of Sales for Harris-Seybold.

As a companion piece to last year's calendar, Mr. Cleland has made another watercolor drawing for reproduction by offset with the same 18th century setting and style, the popularity of which appears now to be well established. The scene "Holiday", evoked and constructed altogether from the artist's imagination, might represent another part of the same tranquil French town which formed the background of the preceding picture, enlivened now by the fun and excitement of a holiday.





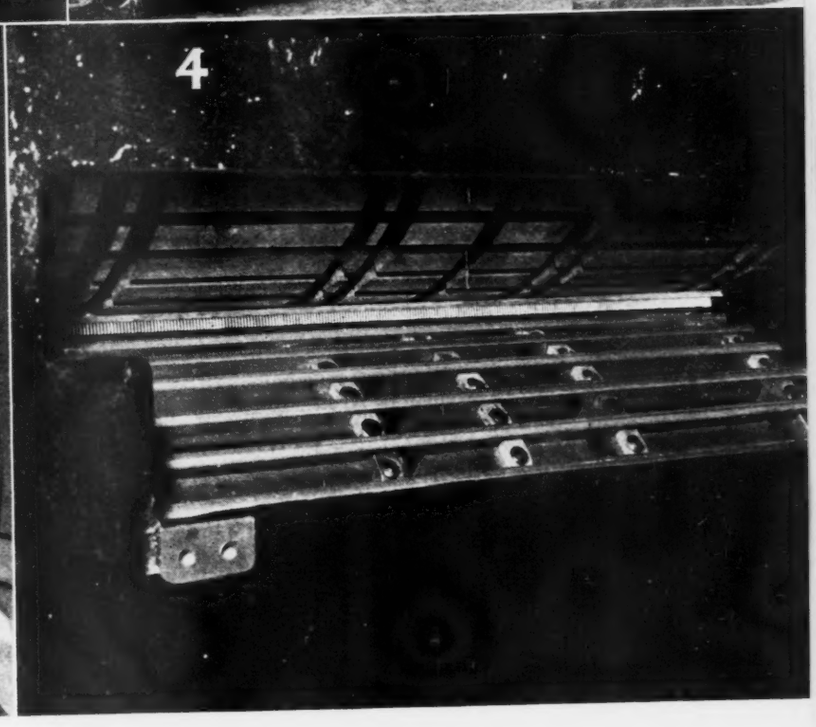


Fig. 1—Air-operated tools such as this drill are handy to work benches in the Cleveland plant of Harris-Seybold Co., manufacturers of offset-lith presses. The operator is drilling a hole in an inker frame.

Fig. 2—Air-operated hoist lifts 1200-lb. side frame for offset-lith press to a radial drill.

Fig. 3—Cleaning press delivery wheels such as these or other parts is done with a sandblaster.

Fig. 4—The head of a stamp perforating machine in the U. S. Bureau of Engraving and Printing, Washington, D. C., has 247 pins to a bar and 44 bars to a cylinder. Each pin must be straight to evenly meet counterpart holes in the bottom cylinder, as the two cylinders turn at 250 r.p.m.

Plate-Making Short-Cuts Grouped Under One Roof For Benefit Of Letterpress Printer

As told by Harry Flowers to Adam Henri Reiser

ELECTRONIC Printing it is called by some. You have heard of the press by which it is proposed to produce printed matter without actual contact between paper and the image or printing plate. It's all said to be based upon the functions of electricity. Well, why can't the electrical quality of the photographic plate be used in a similar manner to that proposed for electronic printing? That question was propounded recently by Harry Flowers of the Flowers Color Photo-Composing Laboratory of New York, N. Y.

Thinking Progressively in Graphic Arts matters is a habit with Harry Flowers. He felt the incorporation of existing short-cuts under one roof to be

Harry Flowers, General Manager, Flowers Photo-Composing Laboratory, NewYork,N.Y., initiated short-cut methods in one plant for letterpress photo-engraving.

of paramount import. Consequently, four years ago he set about establishing such a plant. In his venture, he produces photo-composed negatives and positives for both the letterpress and offset-lith processes.

Interested primarily in using these short-cuts to the advantage of letterpress, Flowers found demand compelling production of offset-lith press-plates from positives or negatives as well as letterpress plates. That also applied both to film or glass negatives or positives for any of the Graphic Arts processes.

Short-cuts such as those used by Flowers in his venture are nothing new. But grouping them under one roof and using them for all processes is an innovation. It is probably the first attempt to equalize the preparatory end of the production scale of all processes. It seems to be the first large-scale attempt to introduce film usage to letterpress, for Flowers gets away from the conventional glass plate by using film wherever possible. That has been the practice in offset-lith for some time even in color work, and certainly in gravure film is no stranger. Then too, Flowers's use of the photo-composing machine for the letterpress industry (incidentally, the machine was originally intended for letterpress by its inventor) makes possible the duplication of images at a much lower cost and with much greater fidelity than possible under existing conditions of handwork on individual subjects. But let's get at the facts.

Art Work created specifically for the Flowers setup, is usually drawn to twice the size and then photographically reduced. Overlays, trapped areas, lettering dropouts, tint areas, registration problems and other specific deviations from the regular run-of-the-mill work is taken care of in the sketch and the negative so that a minimum of handwork and mechanical operation is needed.

In photography the regular 0.005 in. base film is used, reprolith film being found to work the best. Flowers reports no appreciable stretch in sizes up to 18 in. by 22 in. in this film. In some cases where color separation requires turning the image, thin base film or strip-film may be used. Absolute control of all conditions under which the film is handled during exposure and processing operations is imperative. Temperature control of the solutions, air and humidity control combined with group handling, in fact positive control of all the elements of production is a prerequisite. All films belonging to the same job should be developed at the same time. They should be dried together under the same conditions, in fact all the colors on the same job should receive exactly the same handling to assure complete unanimity of reaction. In exposure, timing is kept uniform by the electrically operated device that gauges current consumed as well as the period of time over which the current is on. Density of the negative is tested with an Ansco-Sweet Densitometer.

Color separation on film lends itself to the production of multiple negatives. This is especially so when tints are to be laid on a color. Making a sandwich of the tint and the positive film and then stepping this up the required number of times to yield negatives is one way of eliminating hours of tedious handwork laying Ben Day tints to metal as practiced in the letterpress industry. The old time handwork would have eaten into the profits or may have even represented the taking price of the job. Color separation is carried out in the camera wherever possible, using angled tints. Flowers states that this type of color separation greatly reduces production costs.

Stressing the soundness of the venture, Flowers repeats this is not a trial effort. Experience gained in the past four years with color separations made on film rather than on metal has demonstrated its value. Some dot-etching is used but by far the greater part of the work is carried out by superimposing tint films in areas where Ben Day tints are desired. The whole procedure is merely an adaptation of methods used in offset-lith production for many years. Use is made of the photo-composing machine as well as the multiple negative camera. Using the Rutherford photo-composing machine, Flowers can supply multiple negatives or positives on film or glass. The size is limited to 30 in. by 40 in. on either material. Where glass plates have been prescribed, Flowers finds the Cramer dry plate with a super contrast speed most to his liking. Stressing again the uniform working of all colors of the same job, Flowers finds that drafts of warm air passed over the surface of the film as it is being dried aids immeasurably in size control. This is especially desirable in the larger sizes of film.

Step-and-repeat negatives made on film for a three-color job on watch dials illustrated one phase of the work. Run on a clay-coated board, the dials are grouped 12 on a sheet sized about 17 in. by 22 in. Three million of these dials are wanted, the whole making a run of 250,000 sheets from each of the three plates on letterpress. However, supplying the plates made from step-and-repeat negatives in three colors in perfect register enabled letterpress to successfully produce the job.

Opening new fields through his service is another one of the benefits, observes Harry Flowers, besides helping the letterpress industry retain its accounts. His experience with the flower industry is an example of this. Artificial leaves formerly were produced by air-brushing methods at the rate of about 40 an hour. Using multiple negatives in the production of printing plates for letterpress, these leaves are now produced by letterpress printing at the rate of 5000 pieces per hour. This has resulted in placing the artificial flower market at the door of the letterpress industry. It has also given the public artificial flowers at a reduced cost without cutting wages anywhere. Furthermore, producing these leaves on linen-backed cardboard by letterpress methods from multiple plates has enabled a higher paying industry to compete with the lower priced help of competitive methods. And that is always commendable competition.

Mottle In the Paper

The printer often encounters unexpected mottle due to shiny and dull spots in the surface of noncoated printing papers, especially m.f. and s.c. The glossy and dull spots correspond to high and low spots in the surface which under the compression of calendering are translated into hard and comparatively soft spots as the sheet is levelled out. It is the high spots that shine and the low ones that show dull, which cause a mottled effect in the print.

Generally, the first palliative applied is to increase the penetration of the ink and when this fails resource is had to a dull ink which yields a dull overall effect that masks the shiny spots.

It is shown that the working properties of a printing ink, i.e., its performance during the printing operation, can be interpreted in terms of the rheological properties as measured in a rotational viscosimeter. The instrument used in this investigation is a viscosimeter of the Stormer type. Data are presented to show that it is necessary to distinguish between time-dependent and time-independent flow phenomena. Various theories suggested to explain the time-independent flow phenomena are discussed briefly. The flow of a printing ink over the main mechanical elements of a typographic printing press is analyzed and correlated with simple flow phenomena which can be measured in a rotational viscosimeter.

By ROLF BUCHDAHL and JOAN E. THIMM*

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INTRODUCTION

ONE of the most important properties of any printing ink is its performance during the printing operation. To be satisfactory, the ink material must travel from the reservoir or ink fountain to the printing plate and be distributed in such manner that the film of ink, on printing, gives a satisfactory reproduction of the printing plate. On presses where a plurality of rollers is employed to transfer ink from the fountain and distribute it upon the printing plate, the flow properties of the ink determine whether or not satisfactory transfer through such roller system is secured.

Printing inks are colloidal dispersions of pigments in various organic liquids in which the pigment concentration is 10-70 percent by weight. The rheological properties of such systems are complex and can best be evaluated in a rotational viscosimeter, measuring the rate of shear as a function of the shearing force. Wolarwitsch and Borinewitsch,[1] Arnold and Goodeve,[2] and Green and Weltmann[3-5] to name a few, have reported flow measurements on printing inks or similar materials. The significance of the flow properties in the printing process, however, is not discussed in these papers. On the other hand, Bekk,[6] Green,[7] and Reed[8] among others, have reported data using different instruments which give information about certain properties of printing inks considered important in the printing process, such as "tack," and "length." In this prior work attempts have been made to reproduce fairly accurately some mechanical phase of the printing process. This approach has, however, a number of serious drawbacks: (1) The results usually cannot be expressed in terms of fundamental rheological quantities. This makes it impossible to relate those data, if they are technically significant, to the actual flow properties of colloidal dispersions as measured in a rotational viscosimeter. (2) By these methods only one of a number of flow properties is determined leaving the description of the rheological properties of a printing ink incomplete. (3) Since it is never possible to reproduce exactly the mechanism of a printing press except by building another one, the results obtained with these different instruments cannot be relied on to give complete information about the performance of a printing ink on a printing press.

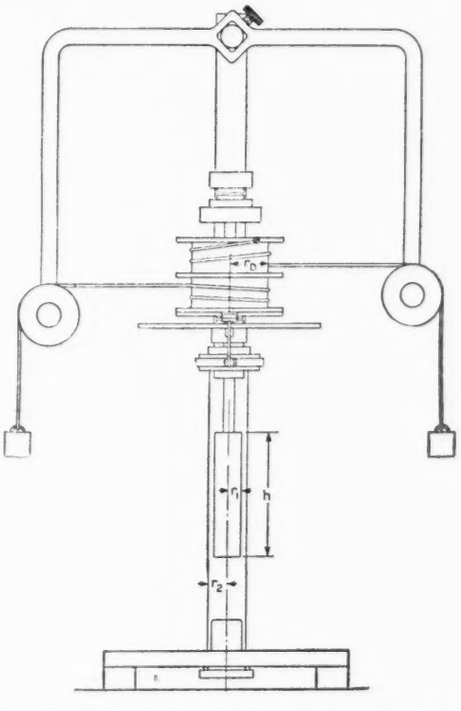


Fig. 1. Diagrammatic sketch of rotational viscosimeter.

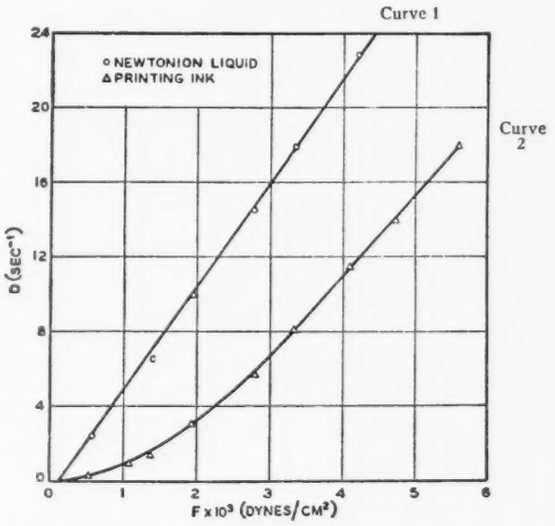


Fig. 2. Time-independent flow curves of a Newtonian and non-Newtonian liquid.

This paper describes a somewhat different approach to the subject to overcome the above-mentioned difficulties. It will be shown that it is possible to analyze the flow of an ink on a printing press in terms of simple flow phenomena which in turn can be directly related to results obtained from measurements with a rotational viscosimeter. Such a correlation between the rheological properties and the working properties of printing inks is of particular interest to the Graphic Arts industry. The proper formulation of printing inks is essentially still an "art" because of the lack of objective methods to evalu-

[1] M. P. Wolarwitsch and V. S. Borinewitsch, Kolloid Zeits. **77,** 93 (1936).
[2] J. E. Arnold and C. F. Goodeve, Trans. Faraday Soc. **35,** 652 (1939).
[3] H. Green and R. N. Weltmann, Ind. Eng. Chem. Anal. Ed. **15,** 201 (1943).
[4] R. N. Weltmann, J. App. Phys. **14,** 343 (1943).
[5] R. N. Weltmann and H. Green, J. App. Phys. **14,** 569 (1943).
[6] J. Bekk, Deutsch. Drucker **44,** 450 (1938).
[7] H. Green, Ind. Eng. Chem., Anal. Ed. **13,** 632 (1941).
[8] R. F. Reed, Lithograph. Tech. Found. Tech. Bull. No. 2, Research Series No. 4 (1939).

ate the working properties, the color properties, and the final print in terms of scientific quantities. The evaluation of the working properties of printing inks in terms of rheological quantities is a first step to establish a science of Graphic Arts.

The Rheological Properties of Printing Inks

The instrument used in most of the measurements reported below is a rotational viscosimeter of the Stormer type. It is constructed in such a way that the viscosity coefficient of a Newtonian liquid can be obtained with an accuracy of about ±15 percent without using calibrating liquids or correction factors. The main parts of the instrument are shown in Fig. 1. The part of the viscosimeter containing the liquid is immersed in a constant temperature bath regulated to ±0.1°C. The following equations are used to calculate the rate of shear (D) and the shearing force (F):

$$D = \frac{w_0 \times r_1}{r^2 \times 1/r_1 - 1/r_2}, \qquad \begin{matrix} w_0 = \text{angular velocity.} \\ r = (r_1 + r_2)/2. \end{matrix} \tag{1}$$

$$F = (m \times g \times rd)/(r_1 \times r_2 \times h). \tag{2}$$

For a Newtonian liquid a linear relationship exists between the shearing force and the rate of shear at a given temperature (see Fig. 2, curve No. 1), until laminar flow ceases at a given critical rate of shear. The rate of shear for a given shearing

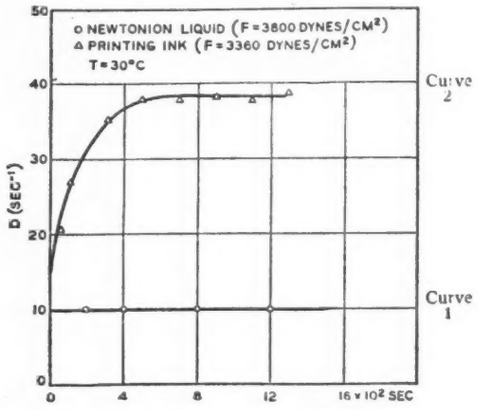


Fig. 3. Time-dependent flow curves of a Newtonian and non-Newtonian liquid.

force, is independent of time (see Fig. 3, curve No. 1) if the time element is not shorter than a few seconds.*

The flow properties of colloidal systems such as printing inks are somewhat more complicated. For a given shearing force the rate of shear is usually a function of time as shown, for example, in curve No. 2 of Fig. 3. The rate of shear always approaches a constant or equilibrium value which is independent of time, irrespective of the changes in the rate of shear previous to the establishment of a constant value. Plotting the equilibrium values as a function of the shearing force generally gives a relationship such as that shown in curve No. 2 of Fig. 2. The slope of this curve, which has the dimensions of viscosity, is now a function of the shearing force. For dispersions such as printing inks, the viscosity usually decreases with increasing shearing force (or rate of shear) until it reaches a constant value. It is generally believed that this type of flow is due to the existence of "structure" which breaks down when the material is sheared. Attempts to obtain a quantitative relationship between the shearing force and the rate of shear on the basis of the concept of "structure" have not, so far, been too successful. Goodeve[9] attempted to develop a theory based on the concept that weak linkages exist between certain units in the system which are broken under the influence of shear; however, the conclusions which can be drawn from his calculations are of a qualitative rather than quantitative nature. Reiner[10] has developed equations for the flow of dispersions in a rotational viscosimeter using the Bingham concept of a "yield value." A comparison between calculated and measured data is only possible for the non-linear part of the equilibrium flow curves, since the slope of the linear part enters into the calculations. Such a comparison shows that Reiner's theory does not satisfactorily account for the non-linear flow properties of printing inks and similar colloidal dispersions. The concept of a yield value is at best a zero approximation.

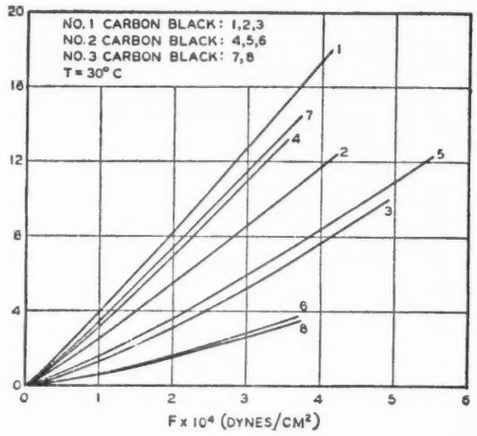


Fig. 4. Time-independent flow curves of various carbon black pigment dispersion in linseed oil.

The fact that the viscosity of certain pigment dispersions is essentially independent of the rate of shear (or shearing force) at higher rates of shear must mean either, that the structure has disappeared entirely, or that it cannot be further reduced by increasing the shearing force. At very low volume concentrations of the dispersed phase the shear-independent viscosity can be calculated, using an equation given by Simha and Guth[11] assuming spherical shape of the colloidal particles. Figure 4 shows the equilibrium flow curves of some carbon black dispersions in the same liquid. Table I gives the viscosity values determined from the shear-independent part of the flow curves. In the table are also shown the calculated viscosities using the equation $n = n_0 (1 + 2.5V + 14.2V^2)$ where n_0 is the viscosity of the liquid at 30°C and V is the volume concentration of the carbon black pigment. (A density value of 1.9 was used for all these carbon blacks.) It is obvious from a comparison of the data shown in Table I that the above equation

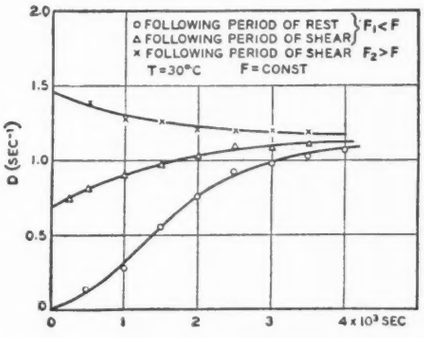


Fig. 5. Time-dependent flow curves as a function of pretreatment of the dispersion.

is not sufficient to calculate correctly the shear-independent viscosities of pigment dispersions, except that it predicts properly the general trend of increase in viscosity with pigment concentration. The agreement is better at lower concentrations as one would expect. At higher concentrations the interference between the dispersed particles is certainly very considerable. Furthermore, it is quite possible that the shape of the carbon black units in the dispersion is not spherical as it has been assumed in the derivation of the equation. More experi-

* Weltmann, Ind. Eng. Chem., Anal. Ed. 15, 424 (1943), reported data which would indicate the presence of such a time effect for Newtonian liquids. Attempts to duplicate these results, using the instrument described above, were unsuccessful.

[9] C. F. Goodeve, Trans. Faraday Soc. 35, 342 (1938).

[10] M. Reiner and R. Riwlin, Kolloid Zeits. 43, 1 (1927).

[11] R. Simha and E. Guth, Kolloid Zeits. 74, 266 (1936).

mental work is in progress to clarify these and other problems related to the equilibrium flow curves of simple pigment dispersions.

The time-dependent flow properties are a further indication of the existence of a structure in these systems. The change of the rate of shear with time is a measure of the rate of (*a*) the breaking of linkages, and (*b*) the recombination of linkages. When the two rate processes are equal, the rate of shear becomes independent of time. The relationship between rate

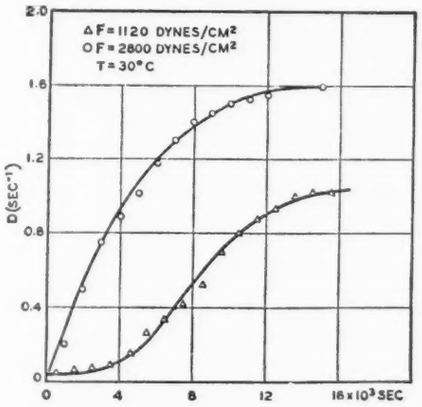


Fig. 6. Time-dependent flow curves for two different dispersions.

of shear and time depends greatly on the treatment of a given dispersion prior to the measurement. In Figure 5 the rate of shear as a function of time is shown, following different pre-treatment keeping the temperature and the shearing force constant. However, even if the pre-treatment of the dispersions is about the same, various dispersions sometimes show characteristic differences in the manner in which the equilibrium rate of shear is attained. One typical example is shown in Fig. 6. Both dispersions were left undisturbed (no shearing force applied) for several days after being filled into the viscosimeter. Similar differences can be observed when the dispersions are first sheared at a high shearing force (where the effect of structure on the viscosity has disappeared) followed by measurements at considerably lower shearing forces. Dispersions which exhibit a marked change of the equilibrium viscosity with shear usually show a marked time effect in the non-linear part of the flow curves, indicating that the two phenomena in these systems are definitely related to each other.

Before discussing the relationship of the rheological properties of printing inks to the printing process, some quantitative data for a few typical printing inks are given. Table II gives the values of shear-independent viscosities for some typical inks and indicates at approximately what speed each ink is used. The relationship between the speed of the press and the shear independent viscosity is quite apparent and will be discussed later. Figure 7 shows the viscosity coefficient of some typical printing inks as a function of the shearing force. It should be noticed that in all cases the equilibrium viscosity decreases with increasing shear until it reaches a constant value.

TABLE I. Measured and calculated shear-independent viscosities of carbon black pigment dispersions in linseed varnish.

Volume concentration of carbon black pigment	Measured viscosity	Calculated viscosity (poises)
Black No. 1..... 5.7%	2300	1530
Black No. 1..... 8.8	3200	1870
Black No. 1.....12.0	4700	2320
Black No. 2..... 5.7	2300	1530
Black No. 2..... 8.8	4000	1870
Black No. 2.....12.0	8200	2320
Black No. 3..... 5.7	2400	1530
Black No. 3.....12.0	8000	2320

The time-dependent flow properties vary considerably for different types of inks. The following procedure is used to obtain the data shown in Table III: the ink is sheared for a given period of time, using a shearing force in the range where the viscosity is shear-independent. This is followed immediately by measuring the change in the rate of shear during a one-minute interval, using a shearing force such that the equilibrium viscosity is higher (by a constant factor) than the shear-independent viscosity. The reasons for using this particular procedure to obtain comparative data on the time-dependent flow properties are described in the next section.

The Flow of Printing Inks on a Printing Press

The proper transfer of the ink from the printing plate to the paper (or any other surface which might be chosen) is the main function of a printing press. This is achieved by distributing a constant amount of ink per unit time from a reservoir (or "fountain") over a distributing system of rollers onto a printing plate. Many printing presses consist, therefore, of three distinct elements which are shown schematically in Fig. 8.* The thickness of the ink film on the printing plate varies between 1×10^{-4} and 5×10^{-4} cm. The speed of a printing press is usually expressed in terms of the number of prints or impressions per minute and varies from 2 to 3 impressions per minute for a hand operated press to 500 impressions per minute for high speed newspaper presses. The geometry of the various elements, shown in Fig. 8, is too complicated to permit the solution of the hydrodynamic viscosity equation relating the rate of shear to the shearing force. However, it will now be shown that an approximation of this complicated flow process is sufficient to correlate the "flow" of an ink on the printing press with the rheological properties discussed in the previous section.

In the first element of a printing press, the fountain, one is dealing essentially with the flow of a liquid through an orifice. Because of the large distance between the shearing surfaces (except at the orifice itself) the average rate of shear (or shearing force) acting on the ink is small, even though the speed of the first roller might be fairly high. At low shearing forces the viscosity coefficient of most printing inks increases, as was shown in Fig. 7. Depending on the speed of a given printing press the fountain has to deliver a certain volume of ink per unit time to the first roller of the distributing system. The viscosity is one of the factors determining the volume of liquid flowing out of an orifice. The two inks shown in Fig. 9 have about the same equilibrium viscosity at high shearing forces, whereas, at shearing forces below 8000 dynes/cm² ink No. 1 has a considerably higher viscosity than ink No. 2. Under a given set of press conditions—speed, opening of orifice—the

* There exists a large number of different printing presses depending on the type surface of the printing plate used (typographic, lithographic or intaglio); in any one of these three cases the paper can be fed into the press in form of a roll (web) or in single sheets. The discussion of these modifications, however, is outside the scope of this article; intaglio presses do not have distributors as shown in Fig. 8.

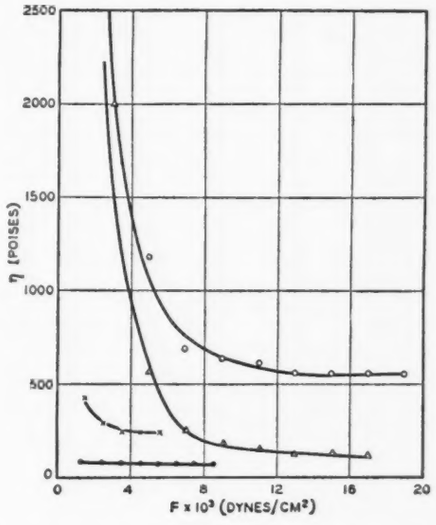


Fig. 7. Viscosity as a function of shearing force of various printing inks.

fountain might deliver the correct amount of ink No. 2; under the same conditions ink No. 1 would be unsatisfactory.

TABLE II. Shear-independent viscosity of various types of printing inks.

Type of ink	Range of shear-independent viscosity (poises)	Range of press speed (number of impressions per hour)
Offset base ink	1000–100000	———
Offset or proof press ink	150–1000	300–1000
Medium speed letter press ink	100–500	2000–5000
High speed letter press ink	10–100	10000–20000
Rotogravure press ink	1–10	5000–20000

It has been assumed, so far, that the ink is in an equilibrium condition when it reaches the first roller. This is certainly not correct in many cases. In filling the fountain, the ink receives a certain amount of agitation, and the effect of the shearing force acting on the liquid in the fountain lasts for a certain period of time. The ink, therefore, might or might not be in an equilibrium condition, depending on the time-dependent flow properties of the particular material. However, the shearing forces acting on the ink in the fountain are always small, and in most cases the total amount of shear received by the ink in the fountain is also small. The establishment of an equilibrium value, therefore, will follow a curve as shown in Fig. 5 (△ symbol). An ink which has not reached equilibrium condition will have a higher viscosity than one which has. Hence, time-dependent flow properties tend to increase the difference in viscosity at low shearing forces, shown in Fig. 9.

TABLE III. Time-dependent flow properties of some typical printing ink.

Type of ink	t_1-t_0* (sec.)
Medium speed letter press ink	400
Medium speed letter press ink	6
Medium speed letter press ink	0.4
High speed letter press ink	131
High speed letter press ink	17

* $t_1-t_0 \backsim 1/D_1-1/D_2$.

The second element of a printing press—the distributing system—consists of a number of rollers. Through the shearing action produced between the two surfaces of roller, the ink is spread out into a thin and uniform film. The shearing force acting on the ink is determined by the pressure existing between the rotating surfaces, whereas the speed or the angular

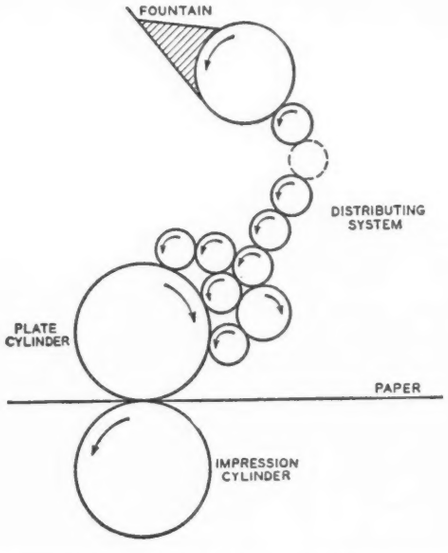


Fig. 8. Diagrammatic sketch of a typographic inking system.

velocity of the surface of the various rollers and the number of rollers determine the total shear the ink receives before it reaches the printing plate. It is important to point out that the speed of rotation of the roller system is determined by the number of impressions to be printed per minute. The flow of an ink in this element can be related to the flow of a liquid in a rotational viscosimeter operated intermittently, where the frequency of the shearing motion depends on the speed and the

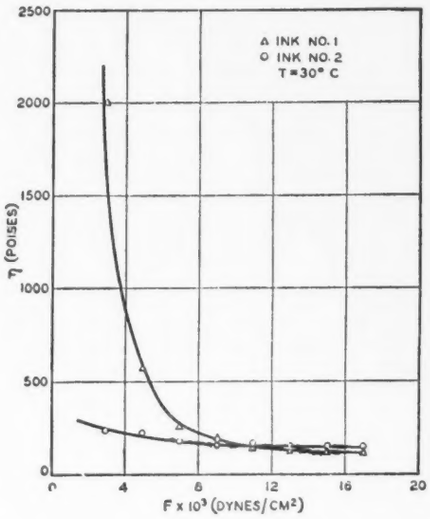
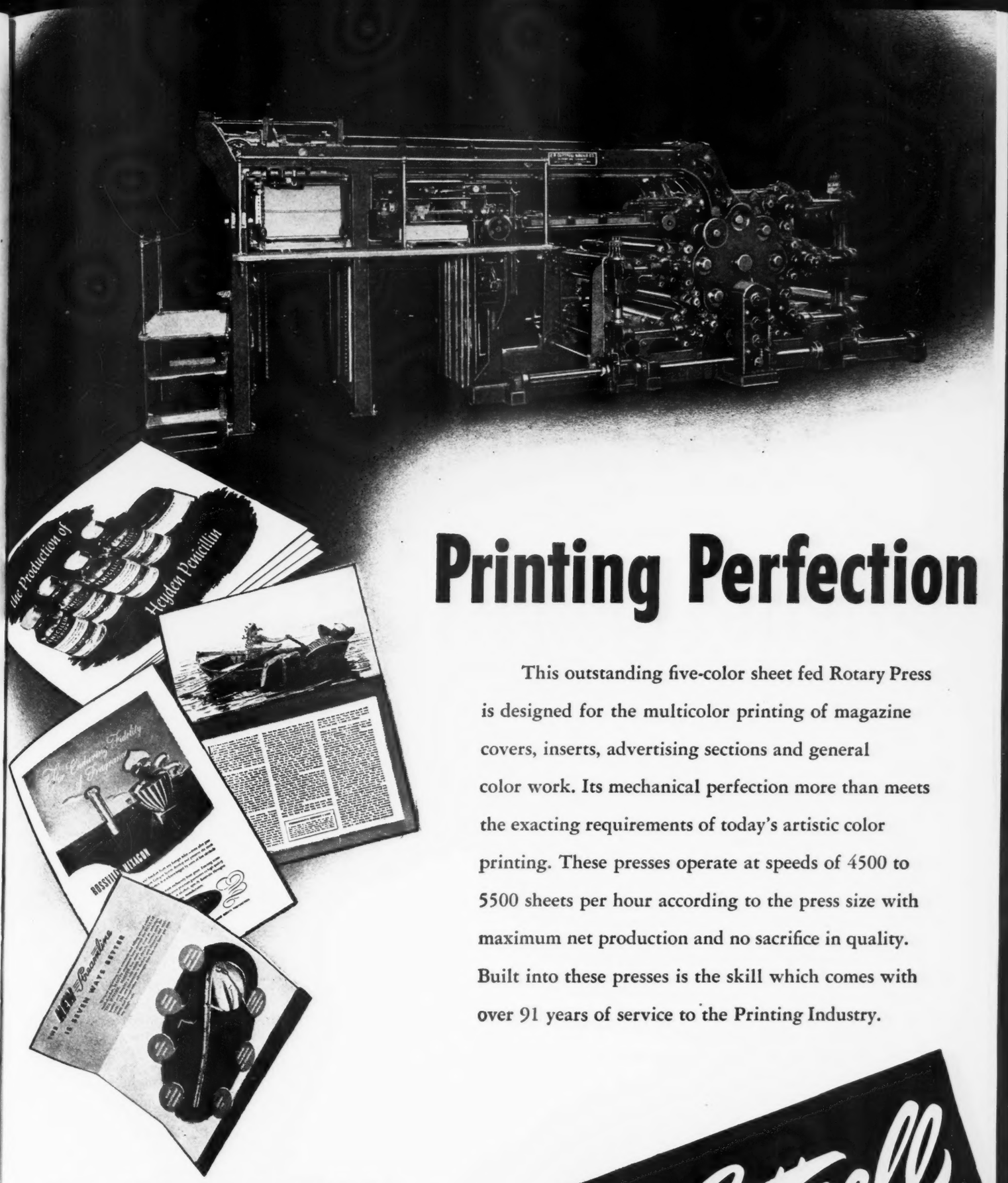


Fig. 9. Viscosity as a function of shearing force of two printing inks.

number of rollers touching. The torque acting on a thin layer of the ink as it is pulled apart by the separation of the roller surfaces rotating at a considerable velocity is always rather high. At this stage, then, it is the shear-independent viscosity which is of importance. Too high a viscosity will produce insufficient spreading, whereas, too low a viscosity leads to streaking and non-uniform distribution of the ink on the rollers and the printing plate. Because of the intermittent nature of the distributing system, the time-dependent flow properties must be taken into consideration. During the time the ink is not sheared, the viscosity can remain constant or can increase. The increase of viscosity as a function of time for infinitely small shearing forces—thixotropy—is a well-known phenomenon in many colloidal systems. (The third possibility—decrease in viscosity after shear at high shearing forces—has not been observed in any commercial printing ink.) This leads to an increase in the "effective" viscosity of the ink during the period of distribution. The time-dependent flow properties do assume much greater importance in the transfer of the ink from the last distributing roller to the printing plate, particularly in the typographic process. When the ink is transferred to the raised part of the printing plate, the ink has a tendency to flow into the lower parts of the plate which should remain entirely free from ink. If immediately after depositing the ink the viscosity increases, this tendency of the ink to flow is considerably reduced. This important working property of a printing ink—usually referred to as "shortness" and "length"—is directly related to the speed of building up the structure after it has been broken down at high shearing forces. In order to evaluate this working property the procedure described above was followed. Results obtained in this manner agree very well with subjective evaluations carried out by various observers and also with actual printing tests.

In the final step the ink is transferred from the printing plate to the paper by contact between the two elements. Upon separation the ink film is sheared and finally broken. Since this film is very thin, the rate of shear even at fairly low speeds is very high [see Eq. (2)]. The force exerted on the paper surface due to the viscosity of the ink is considerable; and if it is larger than the mechanical strength of the paper (perpendicular to its surface), a part or all of the paper surface will be damaged before the ink film has separated. (This phenomenon is known



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as "picking"). The shearing force—or tackiness—produced in the transfer of the ink from the plate to the printed surface increases linearly with the speed or rate of shear because the process takes place at high rates of shear. The data shown in Table II show clearly that the speed of a printing press largely determines the viscosity an ink may have and still not damage the paper during transfer. It is clear from Eq. (2) that the rate of shear increases with decreasing film thickness. For a given linear (or rotational) speed the shearing force produced during separation of an ink film increases therefore, with decreasing film thickness. The shearing force acting during the transfer process can be influenced by the time-dependent flow properties. A "short" ink usually is somewhat "tackier" than a "long" ink if both inks have about the same equilibrium viscosity at high rates of shear. The structure builds up more markedly in a "short" ink after transferring the ink from the rollers to the printing plate, requiring a higher shearing force to separate the ink film at a given speed. The differences in the time-dependent flow properties, however, must be rather large to contribute to an increase in tack. Tack is also of great importance in wet-multicolor printing, where several inks are printed in quick succession. In four-color printing, the order is usually yellow, red, blue, and black, and data given in Table IV show that the shear independent viscosity of a commercial set of inks decreases in this order.

It has been shown how the working properties of a printing ink can be interpreted in terms of the rheological properties, as measured in a rotational viscosimeter. The viscosity at high rates of shear is of primary importance in the transfer of the ink from the roller to the printing plate, and from the printing plate to the paper surface. The viscosity at low rates of shear determines the transfer from the fountain to the roller system. Because the viscosity of printing inks is not only a function of the shearing force, but also of time, the change of viscosity with time plays an important part in the flow of the ink on each element of a printing press.

TABLE IV. Shear-independent viscosity and order of printing in wet-multicolor printing.

Type of ink	Shear independent viscosity (poises)	Order of printing
Yellow medium speed letter press ink	550	first
Red medium speed letter press ink	250	second
Blue medium speed letter press ink	125	third
Black medium speed letter press ink	110	fourth

Acknowledgment

The authors are indebted to members of the Research Division of the General Printing Ink Corporation for help and advice in this work. The instrument was designed by Dr. Carsten C. Steffens.*

* Present address: The Solvay Process Company, Syracuse, New York.

Paper Research Resumed by LTF and Standards Bureau

COOPERATIVE research on paper by the Lithographic Technical Foundation and the Bureau of Standards, Washington, D.C., has been resumed. Recent announcement to this effect was made by Wade E. Griswold, Executive Director of the Foundation. The work is being carried on at the Bureau. Research work was abandoned in 1942 because of war conditions.

According to Mr. Griswold, active work is now in progress on adaptation of resin bonding to offset papers. This wartime development appears likely to have a profound effect on the characteristics of these papers. In addition to improving characteristics of these papers it is expected to enable suitable offset papers to be made from less expensive fibers not heretofore used.

The executive director summarized LTF's research efforts within recent years by citing certain basically new techniques, as follows:

1. Preconditioning of paper by the paper mills to lithographer's specifications. 2. Testing of paper for hygrometric state by means of the Paper Hygroscope, by the lithographer, with the elimination of much paper conditioning in the pressroom. 3. Use of the Register Rule or a similar device for detecting and preventing distortion of paper especially in printing the first color which is the key for registration of all succeeding colors. 4. Control of expansivity of paper in the manufacturing process. This was of utmost importance in the wartime manufacture of map and chart papers.

These techniques all apply to coated as well as to uncoated papers. In addition, the findings with regard to the effects of paper and humidity on the drying of inks are of greatest significance in connection with coated papers.

The Foundation's publications have been responsible for improving the lithographers' information and understanding relative to the characteristics of paper. This has resulted in more intelligent specification, and handling of paper in the pressroom. The same publications have also increased the paper makers' knowledge of the lithographers' problems and enabled him to solve some of them. Better knowledge of the facts by both sides has eliminated many disputes and resulted in better business relationships.

Mr. Griswold also stated: "Much remains to be done. Relatively little is known regarding the characteristics of the paper surface which determine its ink-receptiveness or printing quality. This is a subject for fundamental research. Service inquiries and complaints indicate that it is of greatest importance in connection with coated papers. It is hoped that the paper industry will cooperate in enabling this research to be carried out."

Blue Book of Packaging

A greatly enlarged *Blue Book of Packaging*, a catalog on round steel reinforcement for cartons, boxes, crates, carloads, bundles and all types of shipping in fibre, corrugated or wood containers, is available for the asking. This reinforcement is claimed to be non-corrosive, quick and easy, and uses the round steel as its only seal. In the booklet are pictured improved reinforcing methods, both hand and automatic round steel strapping machines in 20 three-color catalog pages.

Over 100 illustrations of round steel strapping equipment in use are shown. Illustrations also show strapping of printed matter and newspaper bundles.

Charts giving shippers' information on strapping methods (and their whys and wherefores in good shipping practice) also appear. These reveal comparative figures on costs and other methods of shipping reinforcement as well as providing the shipper with new ideas on other economies in shipping.

Free copy of the *Blue Book of Packaging* may be had by writing to the Gerrard Steel Strapping Company direct, or *Printing Equipment Engineer* will gladly pass along your request.

Miehle Publishes Vertical Brochure

A 24-page catalog-brochure in which are illustrated and described the new Miehle Vertical Improved Model V-50 Press is now available upon request, the manufacturer announces. The V-50 Vertical is described as the press "built for today *and* tomorrow" with many improved operating and construction features which are illustrated and explained in detail. The V-50 Brochure covers every point of interest to the printer, including specifications and floor plan.

Printers planning equipment improvements and expansion, states manufacturer, will find interest in this brochure because it suggests the greater efficiencies coming in future press equipment. For a copy of the Miehle V-50 Brochure write the Miehle Printing Press and Manufacturing Co., direct, or in care of *Printing Equipment Engineer*.

Not mere changes... *but Improvements!*

Linotype's constant research of composing room requirements; continuous studies of the best methods of meeting such changes; progressive engineering developments of materials and design; advanced techniques in the construction of typesetting machinery—all coinciding with Linotype's inviolable policy—

Never change for the mere sake of novelty, but ever change for improvement.

TRADE LINOTYPE MARK

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NEW YORK CITY • BOSTON • CHICAGO • NEW ORLEANS
SAN FRANCISCO • LOS ANGELES • *(Representatives in Principal Cities)*
CANADIAN LINOTYPE, LIMITED, TORONTO, CANADA

Molding Technique

for Plastic Plates in plant of Johnson Mat & Stereotype Co., San Francisco — Accurately controlled equipment, skilled workmanship and liberal experimentation are requisites

By PHIL BUSKIRK*

**Richmond, Calif.*

IT CAN be both practical and profitable for an established platemaker to add plastics to his line. The Johnson Mat & Stereotype Co. of San Francisco has been supplying them to national advertisers in newspapers, periodicals and other media since 1942. All stages—from matrix to plate to mat—are performed within the plant. The company believes that its Johnco phenolic (thermosetting) plates, molded of custom-made Econo sheet and Bakelite or Durez molding powder, are unique. Complete facilities for Vinyl (thermoplastic) plates were recently installed, and the company is now in production. The foundation for this commercial application of plastic processes is accurately controlled equipment, skilled workmanship and liberal experimentation.

When the Formula Is Changed

The paper maker not only is selling a commodity but is also supplying a service when he sells paper. Paper is the printer's most important material for without it he cannot print.

There may come a time when the formula for a kind of paper is changed, perhaps for improvement. To a great extent the printer relies on the paper maker for a material that allows him to operate smoothly and economically.

So when a change in paper formula is made, the new sheet should be tested in a print shop, perhaps in the mill and any necessary change in ink for use on the new sheet should be determined and the printer promptly so advised. This is only reasonable service, for the paper maker personally or by proxy in the mill should know exactly how to print on the papers he makes.

Molding the Matrix

For either type of plastic duplicate the first step is taking a mold of the original form or pattern in phenolic matrix material, supplied by Bakelite, Econo or Wilsonite in sheet and powder form. In outline, molding is identical to that done for making rubber plates. In many respects it is the most critical stage of the cycle, for the outstanding characteristic of any plastic plate is its fidelity in reproduction. The quality of type and engraving in the form governs the quality of the finished plate. Safe utilization of the best faces calls for extreme care in preparing the form, applying heat and pressure.

Printing surfaces must be strictly uniform in height, with completely controlled compressibility. For this reason only metal furniture is satisfactory. Illustrations or cuts must be metal-mounted to get satisfactory results. Worn type is unsuitable. High leads, slugs and spacing material should be used. Lockup is the same as for electrotype foundry except that continuous type-high bearers are placed all around the form. These not only prevent the building up of excessive pressure along the edge of the original but leave cavities in the mold which help to cut down flash during platemaking and benefit the printer in his makeready when using the finished plate.

After final inspection and cleaning, aquadag is brushed on and the matrix is polished dry. A phenolic matrix will freeze to undercut etching. Too much care cannot be taken in the etching of plates from which plastic molds are to be made.

Meanwhile the operator has selected control stops to be placed in the press on either side of the form (2 in. clearance on each side is desirable). Their thickness is computed on the basis of the desired matrix "floor", which is thickness through the compressed area of the mold, corresponding to the printing area in the form. The various grades of matrix sheets have different "floors" as recommended by the suppliers according to mold density and toughness needed and whether the original is a pattern or includes type. The operator adds type or pattern thickness to his allowance for floor plus 0.005 in. to 0.010 in. for press deflection. These stops prevent application of further pressure to the original after the ideal density has been reached.

From the supply of raw sheets (stored in a dry place, away from heat sources) a piece of the required thickness, large enough to extend at least ¼ in. beyond all sides of the form, is selected. This sheet is composed of a surface for contact with the original and backing. Greater thickness can be built up by laminating. For unusually deep forms a layer of fill-in powder (identical to a sheet's face but in granular form) is spread over the original and leveled off flush with the printing face. In these cases the assembly must be put into the press immediately to avoid pre-curing. A thin metal sheet, overlying the assembly and control stops, protects the press's upper platen. It also helps to distribute the heat evenly.

During this period both platens of the press (the shop molds with a Lake Erie and an American Type Founders press) have been heated to 307 deg. F. Accurate and continuous heat control is essential. Variations affect uniformity. Too much or too little heat may result in type damage. This control is achieved at Johnson Mat & Stereotype by thermostat controls on both presses. When using the Lake Erie, steam pressure is held at 60 lbs. (+ or — 1 lb.). The ATF allows for a 5 deg. surge.

The next step is to close the press just to contact for a period ranging from less than 1 min. to something over 1½ min., depending on the material and type of form. Called the "dwell", this is the period in which the matrix material is softened and made ready for the impression. Suppliers furnish recommendations as to time, and with experience, operators learn to vary it for different jobs. At the proper point the press is opened about ½ in. to permit the escape of gases or vapor which can be detected visually. Timing is of primary importance. If the next operation (slowly and steadily closing the press until the stops are tight) is started too soon, the molding material will not have become plastic. If started too late, cure will already have begun and the material will require excessive pressure to gain an impression. In either case type damage may easily result. Actually, there is no appreciable moulding pressure on the type form when the timing is right—the pressure that carries the ram being sufficient to fill out the matrix.

From dwell to fully-closed position usually takes about 30 sec. Thereafter the assembly is left in the closed press for from 6 to 8 min. If the mold is expected to be used for a large number of plates, it can be left in longer to develop greater hardness. After withdrawal, release of the matrix is usually a simple matter, requiring only a few manipulations of a binder horn.

Easy on Foundry Type

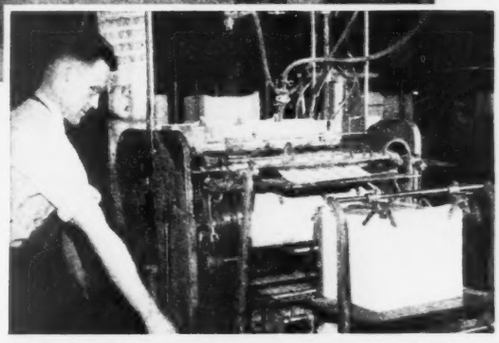
By following this procedure, emphasizing precise timing and conservative pressures, Johnson Mat & Stereotype Co. has repeatedly molded matrices from foundry type with so little effect on the faces that they can be redistributed and combined with other type for pulling

1,000,000 impressions without changing the topsheet—that is the record set by "SPHEREKOTE" Tympan Cover on a recent test run. A large Eastern printer* installed a "SPHEREKOTE" 17C topsheet on a Cottrell 5-color press and deliberately set out to wear this topsheet to shreds. At the end of the run, 1,000,000 impressions later, "SPHEREKOTE" was still going strong, and good for hours more of running. In shop after shop . . .

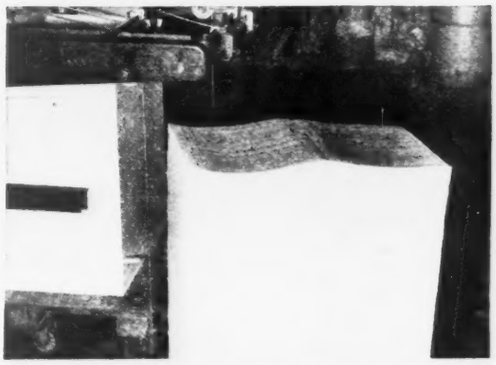
"SPHEREKOTE" TYMPAN COVER

. . . is proving its ability to give more impressions and better impressions per sheet; to save press time and pressman's time. Its unique glass sphere coated surface is non-absorbent—wipes clean in a jiffy. Offsetting is eliminated, even when heavy solids are run. Type and engravings reproduce sharply and cleanly without "fuzziness" or smudging. A trial in your own shop will show you why "SPHEREKOTE" Tympan Cover is the pressroom pet wherever it is used. Write today for complete information.

* *Name of printer furnished upon request.*



With "SPHEREKOTE" on your presses, short runs can be backed up as soon as they can be jogged.



Press perforating can be done directly upon "SPHEREKOTE'S" glass sphere coated surface, without weakening the backing.

PEE (7-46)

Minnesota Mining & Manufacturing Company

Please send me complete information on "SPHEREKOTE" Tympan Cover.

Name_____

Firm_____

Address_____ Zone____ State_____

City_____

MADE IN U. S. A. BY

MINNESOTA MINING & MFG. CO.

THE 3M COMPANY

SAINT PAUL 6, MINNESOTA

engravers proofs. It should be noted, however, that there is no such thing as a foolproof formula. The company's success in large part is due to the familiarity of its operators with the requirements of the process. It takes experience and skill to select the right combination of materials for a given job, accurately estimate the desired floor, time the dwell and apply pressure.

Johnco Phenolic Plates

Importance of the human factor is carried over into the production of Johnco phenolic printing plates. This development, independently worked out by the firm, provides a plastic matpattern which is claimed to be competitive, durability-wise, with electrotypes. Besides a long life, its advantages over thermoplastic plates, it is also claimed, are: (1) resistance to acetone, gasoline and other commonly used cleaners and solvents; (2) it is not affected by heat. Being of thermosetting material, however, it cannot be curved. At the present time the plates cannot be made perfectly flat, so they are unsuitable for patent base. Because of their extreme hardness they must be drilled for nail holes and require abrasive stone for finishing. Their best use is as patterns for mats, and this fits into Johnson's business to advantage.

Plate Molding Technique

Basically, the work cycle is the same as for making plastic matrices. The same equipment is used, and the materials employed belong to the same family of synthetic resins. Filled phenolic in sheet or granular form and powdered pure phenolic make up the substance of a finished plate. Loading the charge is the most critical operation. Bakelite or Durez powder is sprinkled into the mold. Corners and solids receive heaping measure. A special phenolic sheet, made to order by Econo, is laid over this, followed by another layer of powder. A sheet of paper goes on top of the powder. Extra thin plates can be molded by using thin sheets and powder, but present phenolic materials tend to break too easily in release, so that it is not a commercial practice. When it is necessary to eliminate shrinkage, double construction is employed with a perforated metal plate inserted between the two parts.

The press is closed over the assembly (surrounded by stops and covered by a thin metal sheet) to contact only and held for a dwell of the same duration as for matrices. After this, pressure is built up until the stops are tight. As with matrices, the assembly is allowed to bake in the closed press for 6 to 8 min. A harder plate results from a longer cure. Controlled heat (307 deg. F.) is essential. The plate is released from the mold immediately after withdrawing.

Upon cooling, a phenolic plate has a tendency to become either concave or convex. The amount of distortion can be roughly controlled by distribution of the charge. The reason for laying powder on the back of the raw sheet is to help equalize the warping. But before this deviation can be kept within tolerable limits a hand operation is necessary.

The operator works the plate over a hard block or the edge of his table while it is cooling. He bends it in the reverse direction from that which the plate takes on withdrawal. The plastic experts in Johnson's shop have developed this skill to a high degree—avoiding either under or over-compensation. The finished duplicate is left with slight convexity for mat work, since the high pressures of matting are best distributed over the slightly yielding material when the center rather than the corners are raised. If plates are intended for direct printing, they are set with slight concavity. Even with these extra operations, cycle for a Johnco plate seldom runs over 12 min.

These have seen service for a number of years in national advertising campaigns carried on by Standard Oil of California, Safeway Stores, Bank of America, California Packing Co., Petri Wine, Nestle' milk, Nescafe, and others. A single plate is good for at least 500 mats. There have been many reports of long direct printing runs—up to more than 500,000 impressions.

In Johnson's thermoplastic plate department a new Lake Erie press has just

means *MORE* type in *LESS* time

IT isn't really magic—for this is a piece of Teletypesetter tape. Punched with a perforator and fed into a Teletypesetter operating unit, this tape can help you boost your production of straight matter by as much as 100%—it can help you set 350 to 400 lines per machine hour with *fewer* errors.

If your production requirements are on the upgrade, write today and learn how Teletypesetter can help you get the most out of each composing machine.

TELETYPESETTER CORPORATION
1400 Wrightwood Ave., Chicago 14, Ill.

TELETYPESETTER
REG. U. S. PAT. OFFICE

Look to a CHAMP FOR GREAT performance

That "million-dollar sock" isn't accidental. Neither is that he-man durability nor that brute strength and stubborn toughness under punishment. These fight-winning qualities are *acquired* . . . trained in . . . skillfully developed . . . intelligently adapted. They're what makes a fighter the CHAMP.

And they're equally vital in a printers' roller. That's why GREAT performance is to be expected from AMERICAN ROLLERS. Systematically, methodically, by careful scientific manufacturing they've been given the stamina, the invincible endurance to make good. They can take hard drubbing . . . produce quality on the longest runs . . . stand the punishment of high speed presses because champion calibre is BUILT into them. That's why they're superior on any press. Order them. See for yourself the BIG difference.

AMERICAN ROLLER COMPANY
1342 N. Halsted St., Chicago 22, Ill.
225 N. New Jersey St., Indianapolis 4, Ind.

AMERICAN ROLLERS

ALL-SYNTHETIC RUBBER ROLLERS
COMPOSITION ROLLERS - PADDING GLUE
LITHOGRAPH ROLLERS - MAKE READY PASTE

been installed, and additional equipment will be acquired as soon as space is available. Bakelite, Wilsonite and Econo supply the necessary vinyl sheet and powder.

Due to the nature of the resins involved, the process differs from that required to produce phenolic plates. In the first place the charge must be conditioned in dry heat of 150 deg. to 160 deg. F. for at least 1½ hrs. before molding. A day's supply of both sheet and powder is measured out each morning and placed in a thermostatically controlled oven.

Powder alone may be used to advantage for thin plates with unusually sharp printing surfaces. Bakelite recommends the powder process for standard work. Many plate-makers prefer to combine powder with one or more sheets, depending upon final thickness desired. In these cases the mould is filled with powder, and leveled off except for spots requiring extra fill. The sheet is laid on top. Skill in loading the matrix is essential to getting a uniformly strong, filled out plate. Allowing 1 oz. of powder per 7 sq. in. of plate is a useful general rule, but greater amounts must be heaped in corners and over solid areas. Only experience can tell an operator the proper distribution for a given job.

Precise, continuous heat control is vitally important. Upper and lower platen temperatures in the neighborhood of 280 deg. F. seem to give the best results for both all-powder and combination charges. Successful molding is possible at slightly higher or lower temperatures, but there should be no variations during molding. It is also important to get uniform heat distribution. Plastic insulating panels of approximately the same thickness as the matrix are thus necessary. Control stops (thickness determined by matrix floor, desired plate thickness, allowance for press deflection) must be used. With suitable plate-shaving equipment, it is a good idea for safety's sake to allow for an oversize plate to be reduced by a finishing cut.

First operation is plasticizing the charge. This is done by closing the press and exerting slight pressure for 2 min. After this, the actual molding takes place. Pressure is built up until the stops are tight (the Bakelite Corp. recommends from 1000 to 1200 lbs. per sq. in. of plate area, and operators learn to judge the amount from experience). This takes about 3 min.

Chilling the Plate

The final operation is chilling. The assembly, including the insulating panel, is withdrawn and transferred to a chilling press the platens of which are water-cooled. The charge is still in its fluid phase, so heat must be drawn evenly to retain the molded shape exactly. A little pressure applied by hand helps to achieve this goal. Lifting the plate after cooling is a simple operation. The plate is then trimmed and finished according to job requirements. Standard stereotypers' equipment will do the machining, but tipped tools hold up better. This is particularly important with roughers used for shaving. To saw a thermoplastic plate it is warmed slightly and fed slowly.

Detecting Air Bells

Excessively high temperature can cause the accumulation of air holes just under the surface which will break down after a few hundred impressions. This can be detected by rubbing a ball bearing over the plate surface, using moderate pressure. If powder, which cures transparent, is used over black sheet, these holes are plainly visible. High heat or too much pressure will also cause too rapid a flow and poor fill-out. If heat is not uniformly drawn in the chilling press, the plate will warp.

Both Types of Plates Have Their Uses

Each type of plastic plate has its particular use. The phenolic finds its best place in heavy-duty, long-run jobs. For Johnson Mat & Stereotype this means that phenolic plates are made whenever the mats to fill an order are to be rolled in the shop. Basing its opinion on actual performance over a 5 year period, the company is satisfied that these plates are at least as durable as electrotypes. An advantage to the firm is that this kind of plastic duplicate can be turned out on the same equipment used for making rubber plates. For most newspaper runs vinyl plates are supplied, and they are nearly always used for short-run patent-base jobs.

S. W. Johnson, head of the firm, believes that adding facilities for both types of plastic plates has put his plant in a better position to serve the trade. "While the plastics will not make all other plates obsolete nor answer every problem we have to meet, in combination they definitely belong in the plate-manufacturing picture. The position they now occupy will continue to grow—especially as the materials involved are being improved."

Electric Heat Bulletin

ELECTRIC Heat in Industry is the title of Bulletin No. GES,3407. It consists of 8 illustrated pages. Main context of this edition is devoted to discussion of electric soldering irons, electric heat for removing copper plating, precision carburizing, liquefied wax for package sealing, cartridge and calrod heating units.

Ever hear of a paper S-T-R-E-T-C-H-E-R?
WELL ... WE GOT ONE!
Yes sir ... Wotta Blacks will stretch your paper supply because they cut down on offset and spoilage. In fact, you won't get any offset with Wotta Blacks. That means that you use less paper ... and come up with better looking jobs.
If you haven't tried these non-scratch, extra mileage, super blacks, then clip this coupon. Try 'em on your next job ... watch the difference.
Free — Here's a valuable book you'll want — "10 Ways to Avoid Offset." Helpful hints for the pressman. Write for it on your firm letterhead — no obligation.
10 WAYS TO AVOID OFFSET
MAIL COUPON FOR FREE TRIAL OFFER
E. J. KELLY CO., Subsidiary Sun Chemical Corp.
1927 N. Pitcher St., Kalamazoo, Mich.
O.K. Give us the dope on your Free Trial Offer on WOTTA BLACKS.
P. S. — Don't forget my free copy of "10 Ways to Avoid Offset."
Name
Firm
Address
E. J. KELLY COMPANY, KALAMAZOO, MICHIGAN

Leading Stereotypers Choose "COME-BACK" and "STAY-BACK"

STEREOTYPERS who have the "Know-How" use Eastern Tru-Mold Cork Molding Blankets because of their superior "come-back" qualities. These same properties make for sharp, clean impressions even after severe usage. They have greater flexibility that keeps edge cracking to a minimum. Made with just the right amount of Bakelite to insure perfect density. Only Tru-Molds have these properties.

Tru-Molds can be had in either "Medium," "Medium-Hard" or "Hard" density in standard sizes and 21 x 25 x 3/16".

LEADING stereotypers use "Flecto" Gummed Backing Felt to secure maximum "stay-back" resulting in clean-cut plates. "Flecto" sticks flat to the mat regardless of heat used in scorching. It is free from cracking, slipping or crystallizing. Order it in sheets or strips. Either way it cuts or tears easily, cleanly and without ragged edges. Accurately gauged, uniform throughout, soft, pliable; will not peel or separate in layers; conforms to and shrinks with the mat.

Place your order today in either sheets or strips for the following sizes.

GAUGES AND SIZES

Gauges .021, .025, .030 (Green) sheeted 18" x 24".
Gauge .035 (Red) sheeted 18" x 24".
Gauges .040, .045 (Green) sheeted 18" x 22".
Gauges .050, .060 (Gray) sheeted 18" x 20".
Cut into strips 9" or 18" long and 1/8" to 1" wide at no extra charge.

EASTERN NEWSPAPER SUPPLY

9603 NORTHERN BOULEVARD
CORONA, L. I., NEW YORK

IT IS NEW — IT IS BETTER
DEEPMOLD CREEPER

The most advanced development in molding creepers—the Deepmold Creeper—molds exceptionally deep bolsters, gives sharp halftone reproductions, will not cut or spread column rules.

TEMPERS and TEMPERATURES
often rise and fall together

The irritations of hot weather stereotyping often express themselves in hasty words or sullen resentment . . . So shop morale is at stake in any measures that reduce operating heat . . . Such a resource awaits many plants in the form of a change to Certified Mats—celebrated for lower temperature casting.

CERTIFIED DRY MAT CORPORATION

9 Rockefeller Plaza, Dept. M,
New York 20, N. Y.

For dependable stereotyping, rely on Certified Mats

Certified DRY MATS

The Royle Router

- A large table mounted on a rigidly constructed column.
- Convenient alignment and tightening of driving belts.
- Running parts designed to reduce vibration.
- Sufficient speed at cutter edge to route fine or rough out without reducing speed.
- Precisely fulcrumed elevating mechanism assures immediate reaction to pressure on the foot pedal.
- Changing cutter heads a matter of seconds.
- Speed and balance are built into Royle Routers.

JOHN ROYLE & SONS

Established 1855

10 Essex Street **Paterson 3, N. J.**

Newspaper of Tomorrow—*Speaker discusses it from several angles — Makes suggestions for reader convenience and eye appeal*

By HOWARD N. KING*

**Typographic Counselor, Intertype Corporation, Brooklyn, N. Y. Abstract of address delivered before Pacific Newspaper Mechanical Conference, San Francisco, May 1946.*

AS A nation of a hundred and forty million persons, we live differently than we did prior to the war. There is much more hustle and bustle today than ever before in our history. You've heard the expression many many times "there's not enough hours in a day or enough days in the week for me to complete my work". As a result, in the past ten years people have been running through life, running to catch a train, a taxicab, an elevator, or a bus. We are always running, always moving at a terrific pace. Consequently, the typography of 1925 is certainly not suited to people living in this day.

You must agree, that some newspapers today look exactly as they did in 1925 with perhaps but one or two minor changes. The newspapers of this country should be modernly designed simply because news is the most rapidly changing product known to man. You are dealing with news today and history tomorrow and most newspapers don't look much different than they did at the turn of the century.

You are confronted with the greatest challenge in all of the history of the newspaper profession. You might say you have been facing that challenge for many years and that you have progressed and have prospered.

I'll admit that you have to a certain level, but, you have not gone nearly so far in progress as some other industries. The distance you have gone in the last 25 years is nothing compared to the distance you will be compelled to go in the next 10 years.

Some of you believe your paper must compete with magazines such as *Time*, *Newsweek* and *Life*. You are afraid you will be compelled to do magazine printing as such, in order to offset the influence and circulation of magazines in general.

It is my personal opinion that you should not and cannot compete with magazines. A newspaper is an altogether different medium and there should be no such thing as actual competition between the two.

However, the same media does challenge you to produce a newspaper more in keeping with the times. They do challenge you to produce a better looking paper from design to delivery.

Alert to the new trend magazines redesigned their formats, and new magazines modernly styled appeared on the newstands reflected the trend of the times. All prospered. This has been going on for 15 years so isn't it about time the newspapers of this country who have done nothing about changing their formats, do something about modern design and enjoy this popularity?

In the belief that you are interested in this Newspaper of Tomorrow just as much as management, there are several points which we must seriously consider,

(*Continued on Page 80*)

Stereoquip

YOUR PLANT NOW!

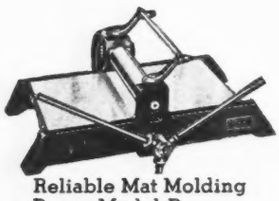
PROMPT delivery can be made on some models of the equipment shown which are now being rushed to completion.

You can avoid waiting for stereotype equipment if you order at once.

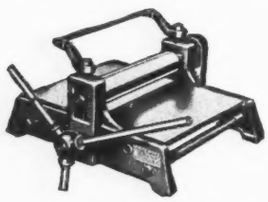
Complete information will be sent upon request.

Reliable Mat Molding Press, Model A

Reliable Mat Molding Press, Model C

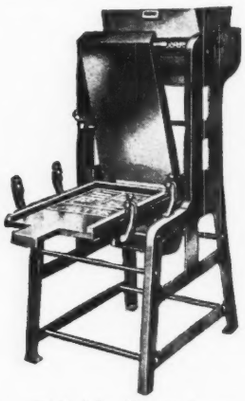


Reliable Mat Molding Press, Model B

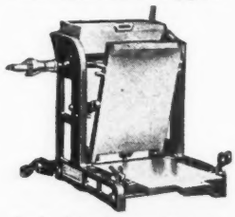


Reliable Mat Molding Press, Model D

Reliable Mat Scorcher



Reliable Stereotyper



Reliable Stereotyper, Bench Model

Reliable Hydraulic Rubber and Plastic Plate Molding Presses

STEREOTYPE EQUIPMENT CO.

Pioneer Builders of Modern Stereotype Equipment

2815 IRVING PARK ROAD CHICAGO 18, ILLINOIS

Paper Coating Problem

ONE instance of badly needed co-operation in research on the part of various institutions is the demand from lithographers for special coated papers for offset-lith that will assist the rapid drying of inks and still not affect the pH of fountain solutions. At present research is carried on independently by lithographers, ink makers, papermakers and others.

Well, too acid a coating slows drying of ink and too alkaline a coating upsets desirable pH of fountain solution.

Paper making is planned in terms of tonnage. It is a fact that one of the largest producers of offset-lith work, if not the very largest, produces more letterpress work than offset-lith.

It is also a fact that less than twenty per cent of offset-lith plants use pH control of fountain solutions.

It appears that close cooperation between the researchers of ink, paper and other suppliers is needed in a linked chemical process with pH control of paper, ink and fountain so closely related and all related to the surface chemistry of the metal plate.

Patents

For The Graphic Arts Field

Covering patents issued June 18, June 25, July 2, July 9.

All new patents for the Graphic Arts are reported exclusively for Printing Equipment Engineer by Invention, Inc., an industrial patent research organization in Washington. D. C. Invention, Inc., presently has the only staff in the country that examines, in the U. S. Patent Office, the complete printed copy, drawing by drawing and page by page, every one of the several hundred new patents issuing each week. Printing Equipment Engineer is the only trade publication in its field offering a report based on this complete coverage. For copies of the patents listed here specify the patent numbers and send 25c for each separate patent, or 10c for each trade mark or design patent (stamps not accepted) to the Commissioner of Patents, Washington, D. C.

For the patent issues of June 18 through July 9, covered by this report, no patents issued pertinent to the heading of BINDING, CUTTING, PERFORATING.

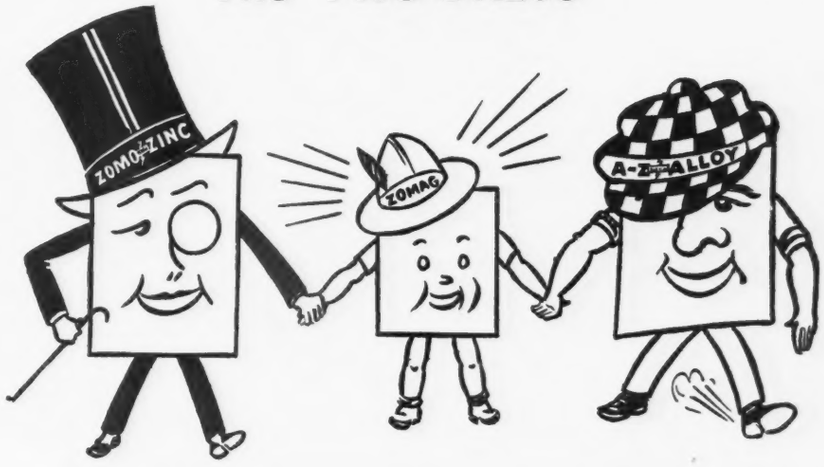
Composing Room Equipment

2,402,750. RELAY CHARACTER—SELECTING SYSTEM for photographic composing apparatus. This, and the inventions described in the two following patents, are improvements for incorporation in the photographic composing machine originally disclosed in patent 2,180,417, granted in 1939. The earlier invention included a font of all essential printing characters, viz., upper and lower case letters, numerals, punctuation marks, signs, etc., and an optical projecting arrangement for selectively projecting images of the characters for exposure on a light-sensitive plate, and also means for moving this sensitized surface to present successive portions in position to receive successive projected images so as to photographically compose for subsequent printing. The new improvement utilizes a relay or intermediate character-selecting system to select beforehand the particular characters to be projected to the sensitized surface. All of the characters for a full printed line are picked out before the images of any of them are recorded. Thus, if an error is made, the required correction in the selection of characters or required justification or spacing of the printed line, can be made prior to recording on the sensitized surface. This is accomplished, in general, by a series of selector pins for each character and a carriage that travels lengthwise of the rows of pins so that the pins may be set by a suitable keyboard with finger keys. Invented by William C. Huebner, New York, N. Y. Unassigned. Application May 3, 1944. 23 claims.

2,402,751. JUSTIFICATION OR SPACE-REGULATING MECHANISM for the photographic composing apparatus described above. The justification system utilizes three (for example) interchangeable justification bars, each for use with a different group of character point sizes so that all sizes from 4 point to 80 point can be quickly composed and the image will be automatically predetermined with the proper spacing of the characters for line length. Also, the spacing can be readily adjusted at will to accommodate the width of certain particular characters, such for example as letters "M" or "W" which require wider spaces than normal, and the letter "I" which requires narrower space than normal. Invented by William C. Huebner, New York, N. Y. Unassigned. Application May 3, 1944. 23 claims.

2,402,752. MOTOR-OPERATED SHUTTER SYSTEM for the optical projecting means of photographic composing apparatus. See the preceding two patents. The shutters of such apparatus are actuated to admit and shut off light for illuminating the printing characters whereby the projecting lens transmit images of the characters individually to the sensitized surface. For use in connection with the character selecting system of patent 2,402,750, above, and the character justification system of patent 2,402,751, above, this invention provides an electrically controlled pneumatic or fluid-pressure-operated motor that effects quick and positive movements. The motor unit is of a form adapting a large number of them to be arranged closely together in a compact group or circular series suitable for operating the shutters for the circular series of type characters of the photographic composing apparatus. Each motor unit has a valve controlling the admission and exhaust of

"NATURALLY, WE'RE PROUD OF HIS PROGRESS"



YOUNG ZOMAG *(Dowmetal)* is certainly making great progress say his backers — the makers of ZOMO ELECTRIC ZINC and A-Z ALLOY.

Although light in weight, he's proving to be a bear for wear. And, he saves tons of lifting on deep etch 11-point jobs. ZOMAG *(Dowmetal)* requires no new equipment . . . all engraving procedures are substantially the same as for zinc.

Sure he's young, but he's a comer. You can order ZOMAG *(Dowmetal)* today through any distributor of ZOMO ELECTRIC ZINC or A-Z ALLOY.

HIS RECORD TO DATE SHOWS

1 **LIGHT WEIGHT.** 1/5 as heavy as copper. 1/4 as heavy as zinc. Big 24 x 36 inch, 11 point sheets easily handled.

2 **RUGGED WEAR.** Zomag *(Dowmetal)* made 2200 mats without a sign of wear. Stands up better than either copper or zinc.

3 **SMOOTH, CLEAN ETCHING.** Zomag etches deep, with no "dirty bottom," using 1/2 strength nitric acid solution, at normal etching speed.

4 **SAVES 50% ACID.** Tests show nitric acid dissolves twice as much Zomag as zinc.

5 **PERFECT REGISTER FOR COLOR WORK.** No stretching or changes in Zomag plate sizes even after using glue top.

ZOMO ELECTRIC ZINC ◆ A-Z ELECTRIC ALLOY

the actuating fluid for moving a piston in opposite directions to open and close the shutter, and an electromagnetic device for shifting the valve to control the operation of the motor. Invented by William C. Huebner, New York, N. Y. Unassigned. Application May 25, 1944. 10 claims.

Feeding, Folding and Delivery

2,402,442. SHEET SEPARATOR AND METHOD in which two air jets with the assistance of a baffle project a stream of air underneath the corners of the top sheet of a pile to separate it sufficiently for a secondary sheet handler to function. The two jets are directed at an angle with respect to each other so as to intermingle at a point over and between the sheets. Approximately 1/5 of the jets of air extends below the top of the sheet and the balance above, thus accommodating all pile situations and sheet weights. The baffle wall is between the jets and cooperates with them in that it obstructs lateral escape of the air toward the opened edge of the separated sheet. This invention is said to eliminate much of the mechanism necessary with the comber type of primary separator. Invented by John R. Perry, Pearl River, N. Y. Assigned to Dexter Folder Company, Pearl River, N. Y. Application March 18, 1942. 21 claims.

2,402,453. SHEET FEEDING APPARATUS embodying a novel device for operating a pile or sheet supply elevating mechanism. The usual foot clamp for holding the second sheet on the pile or supply against movement is utilized as a height testing member or feeler to control the device. A normally stationary pivotally mounted ring sector with a cam surface is swung under control of the sheet supply, through removal of sheets, so as to move the sheet supply. The control mechanism may be regulated while the feeder is in operation to dispose the feeding level at any height or to raise the elevator and pile of sheets. The mechanism may be incorporated in a continuous sheet feeder to control movement of a supply of a fanned-out bank of sheets. Invented by Walter E. Schneider, Pearl River, N. Y. Assigned to Dexter Folder Company, Pearl River, N. Y. Application October 26, 1944. 9 claims.

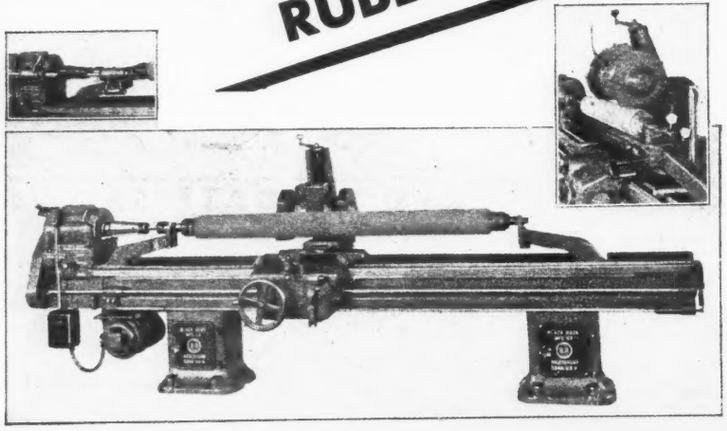
2,403,062. NEWSPAPER DELIVERY MECHANISM for printing presses fitted for adding late news which enables an operator to readily distinguish and remove copies which have been spoiled during the operation of changing over from one type cylinder to another. In combination with a rotary fly, a conveyor, a stripper and a count kicker lever that positions count copies on the conveyor in angular displacement relative to other copies, there is another lever to position spoiled copies on the conveyor also in a position of angular displacement relative to the unspoiled copies but opposite to the angle of the count copies. This second lever, or kicker, is rockably mounted adjacent the fly with its free end normally positioned out of the path of the copies on the fly. The lever is actuated by a solenoid, the circuit of which is automatically closed to move the free end of the lever into the path of the copies in the fly following relative movement between the impression cylinder and the operative type cylinder for addition of late news. Circuit is automatically broken to return lever to its normal position upon contact being established between impression cylinder and the other type cylinder. By means of a time lag introduced in the operation of the solenoid controlling lever, unspoiled copies between the printing position and the fly will be unaffected by the lever. Invented by James Henry Edwards, London, England. Assigned to The Goss Printing Press Company, Chicago, Ill. Application June 11, 1943. In Great Britain July 2, 1942. 1 claim.

Plate Making

2,402,438. PANTOGRAPH DEVICE for automatically engraving or ruling design areas on rollers for printing textiles, wall paper, or wrapping paper. The pantograph has upper and lower carriages for obtaining linear and cross movements. A scribed outline of the painted design may be obtained by manually moving the scribing mechanism and thereafter grounding lines may be automatically scribed within the scribed outline. The mechanism for the ruling and grinding operates by an electric eye responding

BLACK FINE BR TOOLS ROCK

FASTER AND MORE ACCURATE RUBBER ROLLER GRINDING



Model 4 L Grinder

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Our 30 years of specialized engineering experience in this field has been built into this machine. Users have acclaimed it as the LEADER.

- **Capacity . . . 3" to 18" diameter**
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Grinds at any point from Top to Back

Ideal for grinding ball bearing rollers

LET "BLACK ROCK" SOLVE YOUR GRINDING AND POLISHING PROBLEMS.

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ALSO INQUIRE . . . 4-LM Rubber Roller and Tube Grinding Machine.
Grind and polish cylindrical rubber and composition rollers on the same machine.

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Automatically, rapidly and accurately polishes rubber rollers.

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Apology or Alibi?

It does our heart good these days when we read these grateful words of a customer:

"Thanks for your very fine service on our last order. It really pulled us out of a hole."

Increasingly these past few months we have been receiving such letters.

In spite of such welcome praise we suffer from a feeling of frustration because we have not been able to do what we had planned on doing: To give the type of sameday delivery service we had been accustomed to giving before the war.

Everyone who reads a newspaper knows that the basic materials like steel are, for one reason or another, still in unexpectedly short supply. The great setback in steel production—principal raw material of our industry—will continue to be felt for many months. Certain types of skilled labor too are still unobtainable. This is what is meant by "circumstances beyond our control".

Encouraged by the plaudits of our friends, new and old, we continue to comb the markets for material, and to work day and night to keep you supplied.

We don't like alibis or apologies!

Nobody has ever seen an ACE BELT "flopping" about. They wear out,— eventually. They do not lose tension.

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The final factor that decides presswork quality is that moment when the cylinders meet the paper. Whether presswork sparkles with life and vigor depends to a large extent upon press blankets and packing.

VULCAN Press Blankets do a better job because they afford the right combination of all the characteristics you desire. Their dependable uniformity of gauge affords precision thickness.

With VULCANS you are assured the perfect degree of resilience. There is no receding from original thickness. No bolstering. No overpacking required.

VULCAN Press Blankets have an oil-proof surface that eliminates ghosting entirely. They are engineered for the proper amount of firmness which means faithful reproduction of your half-tones, sharp clear type areas and uniform coverage of solids.

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to light-reflecting painted surfaces of a master plate. Power from a scanning head, activated by a light change on the master plate, is amplified by a photo electric relay to operate a control bar for lifting and dropping diamond scribing tools onto and off the roller. The invention may be applied to the reproduction of dots and dashes on printing plates by wire photo impulses to produce printing plates directly, in quantity. Invented by Arnold G. Ochsner, Danielson, Conn. Unassigned. Application March 27, 1942. 2 claims.

2,402,469. PAPER FOR FORMING LITHOGRAPHIC PRINTING PLATES, displaying high cohesion and resistance to water disintegration. The paper is made by incorporating cold water-swollen particles of polyvinyl alcohol into a suspension of fibers, forming a felted web of the fibers, and then plasticizing the particles distributed in the web by heat treatment. Filler materials, such as clay, may be introduced into the paper in amount as high as 30% to 50% by weight by the use of the polyvinyl alcohol. Casein is also mixed with polyvinyl alcohol to eliminate adhesiveness, yet allow its bonding effect throughout the pulp fibers. Invented by William Craig Toland, Brookline, Mass., and Benjamin B. Burbank, Brunswick, Me. Assigned to William Craig Toland, trustee. Application June 28, 1941. 3 claims.

A LABORATORY CONTAINING A COMPLETE MINIATURE PAPER-MAKING MILL

Typical of the comprehensiveness of their laboratory facilities is the little paper-making mill which Burgess built to use in its research on stereotyping mat manufacturing. Operating exactly like a full-size mill, it is invaluable in providing firsthand knowledge of paper-making.

But even with the unexcelled resources of Burgess laboratories, the background of wide industrial research along diverse lines, it took years to develop a mat of exceptionally high quality. They had not only to perfect an entirely new type of mat, but to design and build machines which would produce these mats in volume.

Clear proof of their success in both endeavors is evidenced by the wide and constantly increasing use of Burgess Chrome Mats.

A Laboratory Product BURGESS Chrome MATS

BURGESS CELLULOSE COMPANY

Manufacturers and Distributors of Burgess Chrome and Tone-Tex Mats

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Pacific Coast Representative RALPH LEBER CO., 426 Polson Bldg., SEATTLE, WASH.

Printing Inks and Related Chemicals

2,402,167. PROCESS OF PRODUCING A FINE PIGMENT POWDER by dry-grinding an organic pigment with a water-soluble agent in solid form. The improvement consists of employing a weight of the agent not less than four times the weight of the pigment, and conducting the grinding operating in an apparatus adapted to grind materials by attrition and shearing as distinguished from impact. Pigments thus treated may be more easily incorporated into printing inks. Invented by Joseph William Lang, Woodstown, N. J., and Stanley Rawlings Detrick, Wilmington, Del. Assigned to E. I. du Pont de Nemours & Company, Wilmington, Del. Application December 24, 1942. 8 claims.

2,402,824. IRON BLUE PIGMENT distinguished from ordinary iron blues by the fact that it has a very high degree of resistance to alkalies and may be used for many purposes, including printing inks, for which the ordinary iron blues are unsuited. Method of manufacture comprises reacting a solution of sodium ferrocyanide and ammonium sulphate with a solution of ferrous sulphate to form a precipitate, adding to the resultant precipitate a solution of 1 to 10% by weight of manganese sulphate, adding sulphuric acid and oxidizing to a pigment ferric ferrocyanide with a solution of sodium bichromate. Invented by Edward W. Large, Reading, Pa. Assigned by mesne assignment to American Cyanamid Company, New York, N. Y. Application January 17, 1944. 6 claims.

2,403,112 and 2,403,113. MOLDING COMPOSITIONS, suited for safety glass interlayers, and which also may be used as hard, glossy and transparent coatings for paper. Patent 2,403,112 provides a method of preparing a dialkenyl ester of a diacarboxylic acid, the alkenyl radicals having an olefinic linkage attached to the second carbon atom from the oxygen atom adjacent the alkenyl radical. The compound is polymerized with an organic peroxy compound to form a soft gel containing 40% to 80% of an acetone insoluble polymer. Gel is broken into discrete particles and molded under pressure and sufficient temperature to knit particles into a compact infusible state. The compound of patent 2,403,113 is 1, 2-propylene glycol bis (allyl carbonate). Invented by Irving E. Muskat, Akron, Ohio. Assigned to Pittsburgh Plate Glass Company, Pittsburgh, Pa. Applications July 30, 1941, and March 7, 1942, respectively. 6 and 8 claims, respectively.

Printing Presses and Equipment

2,402,706. FLEXIBLE IMPRESSION MEMBERS, such as offset blankets, draw sheets and printers' blankets, used in lithographing and printing presses, are provided with effective anchorage at all positions across their ends. The anchorage prevents tearing out of the blanket at the bolt holes and without compression of the printing face. The blanket comprises a reinforced body having a deformable impression face and a reinforced end portion for attachment, the end portion being inset at the face of the

"So you think your plant is DIFFERENT?"

Sure, your plant is different—they're all different! That's why the Imperial Plus Plan was designed to fit any case. Each type metal user under the Plus Plan gets personal service and replacement metal tailor-made to fit his needs only after a laboratory analysis has been made of his working supply.

What's in it for you? This time-tested method of metal control keeps your casting temperatures at a minimum for lower fuel bills and dross losses, gives you smooth casting and sharp, clean faces.

Thirty-four years of tailor-made replacements has given Imperial users lower yearly metal costs—in fact, the *lowest* price per pound per year. Switch to the Plus Plan, send today for particulars.

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Serving the Graphic Arts Industry Only

Philadelphia 34 **New York 7** **Chicago 50**

Imperial

THE minutes he spends at case and working bank are the *productive* minutes . . . the minutes that earn the profits. Minutes he spends hunting for leads, slugs, rule, sorts and spacing materials are the wasted minutes that cut down his productive efficiency . . . a waste that no plant can afford.

Hamilton Equipment turns waste minutes into productive minutes . . . steps up efficiency through provision for ample supplies of needed materials in easy reach of every compositor.

Hamilton Equipment saves floor space also . . . through proper design insures most efficient use of available area . . . provides maximum storage and working capacity.

"Clean House for Profits" is a helpful booklet containing layout sheet and miniature illustrations to scale of composing room equipment. It shows by example and illustration how you can re-arrange your own composing room to help turn waste minutes into productive minutes. Ask your nearest Hamilton dealer or write us for your free copy.

HAMILTON

MANUFACTURING COMPANY

TWO RIVERS, WISCONSIN

blanket. The attaching structure comprises a stiff reinforcement of plastic material preferably of the thermosetting type adhered to the body at the inset portion. Invented by Edward A. Sprigg, Wadsworth, Ohio. Assigned to The B. F. Goodrich Company, New York, N. Y. Application March 12, 1943. 8 claims.

2,403,760. TWIN CRANK BED MOTION adapted for application to bed and cylinder printing presses. The invention provides a main bed driving lever pivotally connected with the bed at its upper end and extending downward. The lever has a combined pivotal and translatory movement in a plane parallel with the direction of the bed's movement. The particular movement of the lever to yield the desired bed velocity curve is effected by the use of two cranks, these cranks being disposed upon one side of the lever and having their axes perpendicular to the plane of swinging movement of the lever. The two cranks are out of phase with each other as well as having different throws and angular velocities. The crank pins are connected respectively with an intermediate point on the lever and the lower end, by horizontal links. Invented by Frederick W. Seybold, Westfield, N. J. Assigned to American Type Founders, Inc., Elizabeth, N. J. Application January 31, 1944. 9 claims.

For Patent Research in the U. S. Patent Office, or a prompt estimate on any type of search, address INVENTION, INC., Munsey Bldg., Washington, D. C.

Export Possibilities

The demand for United States commodities has reached an all-time high in South America, according to a statement made by A. Manuel Vega, Dayton Rubber Export Co. distributor in Lima, Peru.

Touring the main plant of the Dayton Rubber Manufacturing Co. with Col. E. L. Hollowell, vice president and managing director of the Export Company, Vega said that the economic harmony of the Americas depends largely upon the export-import trade between nations in North and South America.

The South American nations are rapidly developing their natural resources and transportation systems, he said.

Because the demand for United States manufactured goods is so great, Mr. Vega contends that South American markets now offer one of the largest export possibilities to American industry.

Tri-Clad Totally Enclosed Motor

General Electric Co. has published illustrated bulletin No. GEA-4400 in which are described GE's new Tri-Clad Totally Enclosed Motors. H.p. ranges from 1 to 1000. These motors are for use in extremely dusty, dirty, corrosive atmospheres. Available in standard, explosion-proof, and dust-explosion-proof types. Ask for Bulletin No. GEA-4400 when writing to General Electric Co., or to *Printing Equipment Engineer*.

THE demand for printing is so varied—so vast—that no type of printing press can meet all requirements. But for the greatest versatility in producing a large percentage of "run-of-hook" work C & P presses have met the needs of printers for more than 60 years.

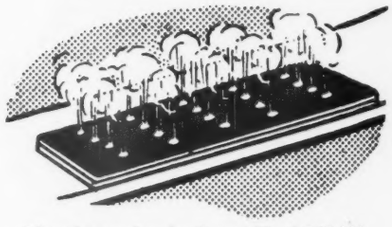
And during these sixty years great strides in improved design, longer life and automatic feeding that give more profitable production to the printer have been built into the C & P line.

Today, the call for Chandler & Price equipment is greater than ever. We are producing as fast as conditions will permit. If you have a C & P press on order you may have to wait for it. But you'll be glad you waited.

THE CHANDLER & PRICE COMPANY
Cleveland, Ohio
MANUFACTURERS OF PRINTING MACHINERY FOR 60 YEARS

STEREOTYPE PERFORATED GUMMED PACKING FELT

Important where considerable shrinkage is employed



Manufactured under Patent No. 1,967,444

Is More Flexible • Forms with the Mat • Dries Faster • Sets Instantly

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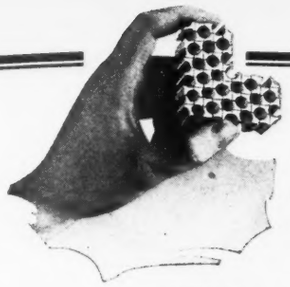

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You can't beat BLATCHFORD · BASE

It's pretty tough, these days, to get people to agree upon anything. But when you talk "base" . . . or plate-mounting problems . . . you don't find many serious arguments because *Blatchford Base* has proven beyond any reasonable doubt that it "delivers the goods" on *all* kinds of printing production.

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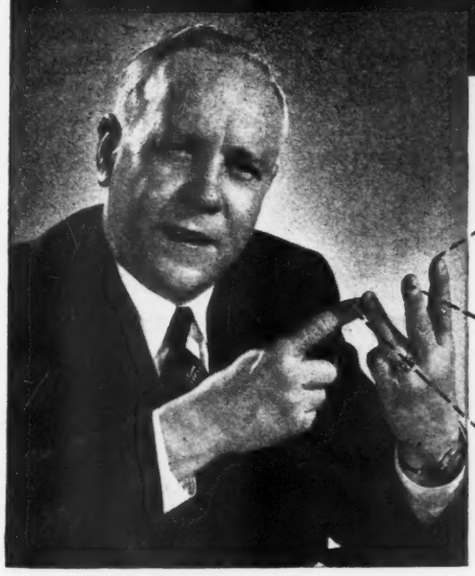
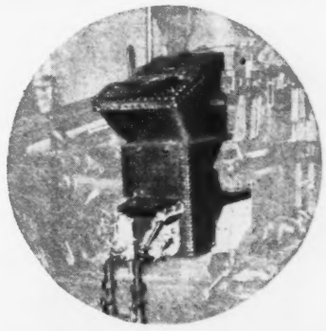
Speed printing operations 3 ways . . . with MONOMELT!



1 **CUTS COSTLY MACHINE "DOWN TIME."** Monomelt keeps type metal balanced—eliminates fouled throat, squirts and other metal troubles. Keeps machine running with less repair and less attention.

2 **REDUCES RESETTING and MAKE-READY TIME.** Monomelt prevents hollow or chilled slugs, low letters and breaks. Better slugs mean fewer corrections . . . less make-ready time . . . better printing.

3 **INCREASES TYPE PRODUCTION.** Monomelt feeds metal automatically—requires less time filling melting pot; no need to watch temperatures.



WRITE TODAY for new Monomelt bulletin just off the press. Gives details of time-saving features of Monomelt's single-melting system for efficient handling of type metal.

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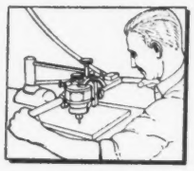

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Onsrud highspeed steel Router Bits are famous for their long life. Made of special alloy steel, the edge stays sharp. Cuts smoothly . . . lasts longer . . . minimizes tool changing and resharpening troubles. Made in all standard sizes and types. *IMMEDIATE* delivery . . . order one or a dozen now. Send old router bit as sample and we'll match it. Write for Router Bit Folder and prices.

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Onsrud

Tommorrow's Newspaper

(Continued from Page 72)

when we begin to plan this newspaper and each one is so important that none be eliminated or treated lightly.

Color

The first is Color. I know you have heard much on this one point alone and I think you will hear much more.

Without a doubt, it is the most important item in your Newspaper of Tomorrow, since color is a very definite part of our lives. The whole world is a riot of color. Look about you, everything we buy, everything we see and do, has color in some form or other in its make-up.

No one dares question its importance to selling, due to its long proved acceptance. When color can sell a $10.98 dress or $2 finger nail polish, there are just no arguments against it.

I know it will be necessary to purchase new equipment to do a good job of color printing. It must be your aim to improve upon the color pages we now see in our daily papers. The present quality is just fair as compared to what will be expected in a few years.

Part of that can be attributed to the excited advertiser, who given an opportunity to use color for the first time in a newspaper went overboard by spreading it all over the page instead of using it sparingly. They, too, must learn to concentrate color in a spot or two in their ads, so that it will direct the eyes of the reader to the product, rather than to the overall page.

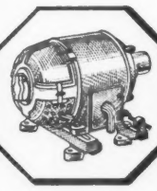
Recently a Milwaukee *Journal* readership survey, revealed color ads were widely read by both sexes. One roto section ad in color was read by 65% men and 56% women. When you get a greater percentage of men reading your ads over women, that is something to write home about.

Pictorial

The second point for you to consider in this Newspaper of Tomorrow is to make it pictorial. Please don't get the impression that I want a pictorial section. I advocate the use of large photographs placed near the stories they com-

KIMBLE

CUSTOM-BUILT MOTORS



STANDARD OF PERFECTION IN THE GRAPHIC ARTS INDUSTRY FOR NEARLY A HALF CENTURY

KIMBLE ELECTRIC
Division of Miehle Printing Press & Mfg. Co.
2005 WEST HASTINGS STREET
CHICAGO 8 ILLINOIS
DISTRIBUTED BY AMERICAN TYPE FOUNDERS

Booth's Zink Cut Cement

Booth's Zink Cut Cement is a one purpose adhesive. It is made to fasten cuts, (zinc, stereo, or electro) to wood or metal base. It gives superior performance in doing that job.

This economical, easy to use, product will not change printing levels. Get a supply of Booth's Zink Cut Cement, the most economical cut-mounting method.

PRICES—In the United States: 75c per tube; $6.00 a dozen tubes; $5.00 a dozen in gross lots.

Booth's Black Rubber Rolls

Booth's Black Rubber Rolls are popular with line casting machine operators and machinists the country over. That is because they give long and trouble-free performance. They give maximum resiliency and are of constant diameter when applied properly to the roll shaft.

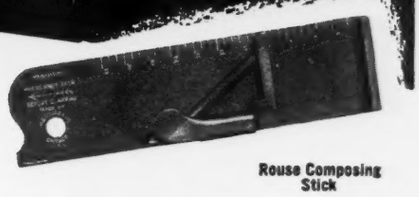
PRICES—$1.45 per pair; $7.75 per dozen.

E. A. BOOTH RUBBER CO.

MAHONING BANK BUILDING

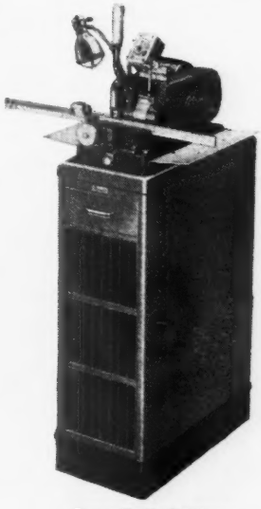
YOUNGSTOWN, OHIO

NOW IS THE TIME...To make a "Condition Check" of Your Printers' Tools



Rouse Composing Stick

When you inventory equipment, it's a good policy to check the condition of every item—*particularly small tools.* Only precision tools—in first class shape—can help you to maintain top-quality output for your entire plant.



Rouse Vertical Miterer

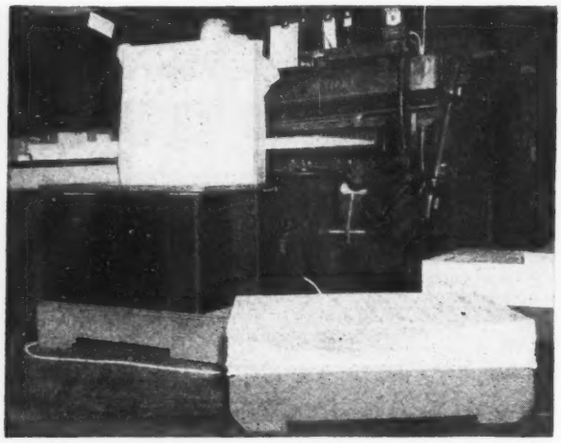
Insure profitable, efficient composing room production . . . Specify Rouse Tools for replacements—Rouse Hand and Vertical Mitering Machines, Lead and Rule Cutters and Composing Sticks.

Rouse Hand Miterer

H. B. ROUSE & COMPANY

2214 North Wayne Avenue • Chicago 14, Illinois

SYNTRON
"VIBRATING"
PAPER JOGGERS



Provide the Easy, Economical Way to Handle Paper

— big sheets or little — onionskin to heavy board — at the cutter or at the press.

Seven different models — with vibrating decks from 14" x 20" up to 28" x 40".

Write for Illustrated Folder

SYNTRON CO., 577 Lexington, Homer City, Pa.

WE ARE HAPPY TO BE ABLE TO SAY THAT THERE ARE MORE

CUSHMAN
(OFFSET)
MOTORS

being shipped today than ever before,— in spite of material shortages.

It is significant that a very large percentage of these motors go to those who have been users of Cushman Motors for many years.

Cushman Motor Division

LINOTYPE PARTS COMPANY
WEATHERLY, PENNA.

plement. This avoids the usual physical maneuvering from picture page to news story and back again. You will be compelled to use a generous number of these photographs throughout the entire paper in the near future.

Pictures can often tell phases of the story that cannot be told in type. I don't believe people want pictures alone. People like to read, but they also like to see photographs of people and events.

Large pictures will liven up any newspaper, because they in themselves are quite colorful.

They will also help to provide the necessary variety in makeup. Good pictures on the front page have long contributed to the attractiveness of that page. Some editors have appreciated the value of this for some time, but they seem reluctant to place pictures to the same degree on the inside pages, or to vary the makeup of these pages.

It is not so important what you do to secure this variety, as it is to keep the picture or pattern of the page constantly changing, so that your readers don't go stale on you and think to themselves "I am sick and tired at looking at this same thing every day for the past 15 years". A lively, constantly changing makeup will effectively defeat such an attitude on the part of readers.

The newspaper that changes its makeup, changes the spotting of pictures and doesn't forget the lower half of its paper, below the fold, is definitely establishing a good practice.

Typographic Director

The third point for you to consider in thinking of your Newspaper of Tomorrow is to create a new officer and give him the title of Typographic Director.

For a great many years considerable dissatisfaction with the mechanics of newspaper advertising has been voiced, the stores feeling that both they and the newspapers have a job ahead of them in improving techniques.

Some weeks ago, I was invited to spend several days in one of the nation's largest department stores.

Here was a store, with approximately 25 to 35 persons in the advertising department, asking a commercial typographer for advice. They wanted to know "how" to improve the appearance of their advertising. "How" to improve their art-work and every other detail pertaining to advertising. They wanted to know more about Radio and Television, in spite of the fact they maintained a daily program and right now they are considering a big Sunday afternoon show.

As I worked with these people, saw the interest on the part of copy writers, artists and production executives, I got to thinking, that all I was doing, could have been accomplished by the local newspapers since they were to benefit by it all.

Yes, this was definitely a job for the newspaper and if any newspaper created the office of Director of Typography, it would be his job to do exactly as I had to do in this store.

Retailers want better cuts. They want better reproduction of photographs and engravings, advice on retouching, mats, paper, etc. They want improved printing techniques, which include cleaner mats and stereos, more careful makeready, perhaps better inks, closer attention to what comes off the presses. They want better types and typography. Newspapers cannot have all the type advertisers might want, but, you can do more than has been done in the past 20 years.

Of course, they want Color. Though they recognize that color has been hard to get in the last few years, the retailers feel that in the future, newspapers will have not only to improve color printing, but also to bring down the cost.

They want Better Service. Delivery of proofs, pick-up of copy, proper correction-making, and enough papers for the store files.

A Typographic Director would advise advertisers that his newspaper will not tolerate solid back ads, even though a part be in reverse, simply because it is ruinous to the final appearance of the paper and is unattractive and therefore not good advertising.

He would likewise advise the composing room that they cannot surround the beautiful retails ads with those on piles, paint and patent medicines. If the retailers clean up their ads, then our typographic director will insist that other advertisers either do likewise or be put on a

Exclusive Distributors JOGAWAY Paper Jogging Machines (made in three models.)

Complete line of New and Remanufactured Printing, Lithograph and Bookbinding Machinery and Equipment.

IT'S ALWAYS FAIR WEATHER WHEN GOOD FELLOWS GET TOGETHER

And We Wish All The

INTERNATIONAL PRINTING HOUSE CRAFTSMEN

The Fairest of Weather and Best of Fun

At Their Convention in Montreal

M. L. Abrams
PRESIDENT

THE M. L. ABRAMS COMPANY

"YOUR SUPPLY HOUSE"

1639 SUPERIOR AVENUE CLEVELAND 14, OHIO

OHIO KNIVES

O.K. BLACKARROW PAPER TRIMMING KNIVES

give 25 to 40% longer service

Give better cutting at lower cost—proven under severe test in America's largest paper mills and printing plants. Made of a new alloy to withstand heavier cutting and still hold a keen edge for long runs. Ground with a slight concave and taper on the face for clearance—smooth cutting.

Write today for our new catalog giving complete information on O. K. BLACKARROW paper trimming knives.

The **OHIO KNIFE** *Co.*
CINCINNATI 23, OHIO, U.S.A.

LASTING IMPRESSIONS

because...

WOOD DRY MATS are made to the most exacting requirements of a skilled industry.

WOOD FLONG CORPORATION
HOOSICK FALLS, N. Y.
NEW YORK CITY OFFICE:
551 FIFTH AVENUE, NEW YORK 17, N. Y.

IT'S EASIER
QUICKER
CHEAPER

Use the Mohr Saw for 100% automatic, completely accurate slug sawing. You save time . . . save metal . . . save money. The measure-control dial provides instant precise adjustment of slug length. Slugs are cut to any desired length as they are ejected from the linecasting machine.

Adopt the method favored by shops everywhere for sawing odd-measure machine composition—speed work by using Mohr Saws!

MOHR LINO-SAW COMPANY

126 N. Union Avenue Chicago 6, Ill.

Fine Printing with the

FINEST PRESSES

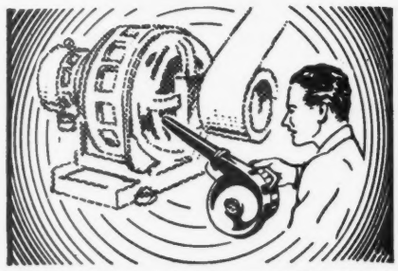
COTTRELL-HEINRICH MULTICOLOR
ANILINE-GRAVURE PRESSES

For fine printing there are no finer presses than these "De Luxe" and "Junior Model" aniline presses. Inexpensive production is their appeal. Their adaptability rates high with paper converters, printers and publishers.

Write for more information

H. H. HEINRICH, INC.
200 Varick Street · New York, N. Y.

QUICKER
CLEANUPS
at Lower Cost
with the
TORNADO
BLOWER-CLEANER



IN your all-out-defense against dust danger and damage, use the TORNADO. Gets dust, dirt and lint *all out* of motors, linotypes, presses, folders. Makes motors and machines last longer. Also convertible for vacuum-cleaning of shelving, paper stock and type cases. Adaptable for spraying paint and insecticide. Keep your costs down — your profits up — by keeping your plant clean with a TORNADO.

Write for details and Free Trial Offer!

TAKE THE DUST OUT OF DUST BY BREUER'S BALL BEARING TORNADO PORTABLE ELECTRIC BLOWER

BREUER ELECTRIC MFG. CO.
5141 N. Ravenswood Ave., Chicago, Ill

page, where all ads of cheap appeal would appear and consequently fight for attention.

Design An Easy-To-Read Paper

Point number four in our Newspaper of Tomorrow is to Design An Easy-to-Read Paper that will be a pleasure for all. How to do this becomes one of our most difficult problems.

We should give the readers of newspapers larger sizes of type for text matter and increased spacing between the lines.

Many publishers seem to be under the impression that their columns must be jammed from top to bottom with news. They fail to realize that the difference between an 8 pt. solid slug and an 8 face on 9 pt. slug is not more than a mere few hundred words.

Perhaps we will see a large number of papers go to 9 pt. face on 10 pt. slug.

Another feature we must think about soon is the amount of space on each side of column rule. To my way of thinking, we simply must add more white space. I'd like to suggest as much as 6 points. And I expect to see some papers put as much as a pica between the columns and again some will try to get along without the customary column rules.

Who knows, perhaps some designer will be bold enough to try and create a 7 column paper, because of the added variety he could develop with pictures and headings. Of course, he would increase the pica measure of each column, because that would help to make the paper easier to read.

Or perhaps someone will have the courage to design a paper which will be smaller than the regular trim size 16½ in. by 23 in. Ease of handling will be one of its features, and it will probably be just 5 or 6 columns wide, set in 10 pt. type, leaded 2 points.

Seems to me it might be an interesting project, to have several designers the country over, try their hands at designing this Newspaper of Tomorrow. The newspaper publishers themselves might put up a few worthwhile prizes to sponsor this project.

During the past ten years we have seen a vast improvement in department store advertising. Most of the better stores have long since discarded the ugly types and now set their ads in light faces. Then, too, they have learned the powerful effect of white space in their advertising and the value of striking illustrations. Knowing that to be true, why haven't we learned then to discard all of those old out-of-date bold faces throughout the paper?

Type faces are more important to display advertising than elsewhere, because type faces have individuality and character. Stores of one kind should use type faces of a certain character, while other advertisers require quite different faces for their display heads. You say, that you cannot possibly keep up with the new type faces, which are produced year in and year out. With this I cannot agree, because I am of the opinion your newspaper men have not attempted to keep up with the modern type faces for many years.

It is not necessary to be continually buying type faces.

Several well-chosen type faces — chosen not only for their individual appearance and flexibility, but also for their adaptability to use in combination —in complete point sizes from 6 pt. through 48 pt.—will provide means for reproducing ads that will enhance the appearance of the advertising pages.

There is a style in type faces as clearly as there is in interior decorating or women's shoes, or clothes. It is true, the average person on the street doesn't appreciate the difference between one type face and another. But it is likewise true, that if you set a given piece of display copy in some obviously old and antiquated type faces, and then take the same layout and copy and reset it in a more modern, up-to-date and better designed type face, and then lay the two proofs down before these same average people, they will at once be able to tell you which one looks up-to-date and fresh and which appears old-fashioned.

I could go on and tell you that you should use thin spacebands in setting the news columns—that you should never letterspace lower case headlines—that you should permit more breathing room or air in your headlines—that you should toss out dinghats and all rules that tend to clutter up the news columns—that cap and lower case heads are superior to all caps—but I hope each one of you is thinking of doing all of these things in the near future.

BEVERIDGE DRY MATS *are Dependable*

SAMPLES TO YOUR SPECIFICATIONS
GLADLY SENT GRATIS UPON REQUEST

New Products Division
THE BEVERIDGE PAPER COMPANY
INDIANAPOLIS 4, INDIANA

60 YEARS OF PAPER MAKING SKILL

TIPS FROM TYMPAN ALLEY

PRESSWORK SUGGESTIONS

SCORING: Trouble is sometime experienced when a score is needed between parts of a form where very little space is available. The difficulty is in finding room to build-up the Tympan on each side of the rule. One suggestion is to place two rules with a lead or two between them where the score is to come. Get an impression on the second sheet. Take a No. 18 copper wire and paste a length between the print of the two rules. It must not have any kinks. When it is set so it will stay in place, pull draw sheet down tight and proceed with job.

IMPRESSION: Some printing requires more than ordinary impression. One difficulty with excess impression is due to the use of wrong type of packing, which causes matrice. A good rule to remember is that pressboard or kraft should never be used, as both of these papers, although tough, have a pulpy interior and matrice easily. One or two sheets of news-print is all right on short runs, but should not be used on a long run.

PERFORATING: to prevent slitting of tympan when perforating on platen presses, put a strip or two of Gummed Cloth Tape on the tympan where the perforating rule will strike.

COVERING SOLIDS: Very few presses can perfectly ink greater than 50 to 60 percent of their rated size where solids are concerned, without some accessory or extra care with ink, rollers and make-ready. If no accessory rollers are available, inks must be suited to the press, rollers, running speed, and paper. Rollers should be in the best of condition and set as light as practicable for good inking at running speed. The set should be examined as atmospheric conditions change and as friction develops heat during run.

CROMWELL EXTRA SPECIAL GUARANTEED TYMPAN

Good tympan is an essential to good printing. That's why "Cromwell gets the call" from careful printers everywhere. Cromwell Extra Special Prepared Tympan is *unconditionally guaranteed* as to quality and performance. Try it today—you'll say it's the best tympan you ever used.

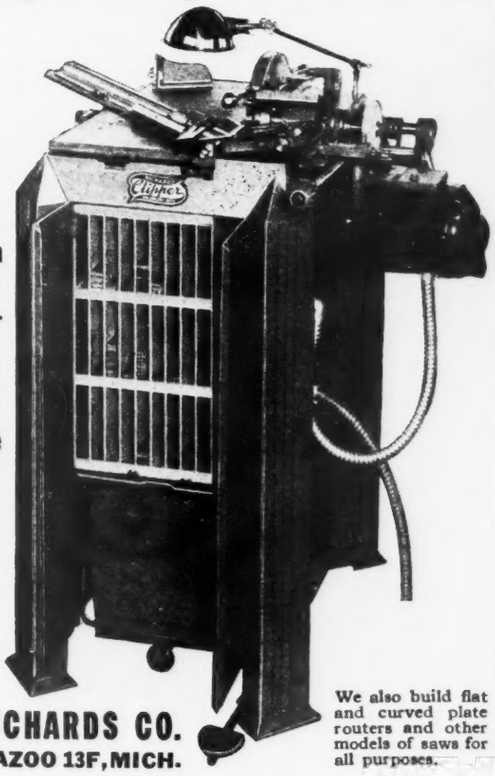
the **CROMWELL PAPER COMPANY**
4801-39 So. Whipple Street, Chicago 32, Illinois

EXTRA SPECIAL PREPARED TYMPAN

The Richards "CLIPPER" leads

IN PRECISION—UTILITY—VERSATILITY

The Original Rolling Table Saw - Trimmer



A Modern POST-WAR Machine

We also build flat and curved plate routers and other models of saws for all purposes.

J. A. RICHARDS CO.
KALAMAZOO 13F, MICH.

TRUE — UNYIELDING

IMPOSING SURFACES

SEMI-STEEL

★ Used in busy, up-to-the-minute shops to produce quality work in less time. Precision ground to a high degree of accuracy, and will maintain that accuracy when properly supported. Two inches thick with heavy reinforcing ribs at right angles to prevent sag.

Use a Challenge Imposing Surface and you will never go back to the *old-fashioned stone* . . . . Built in 18 standard sizes—all precision ground—except the 28x120 and 28x144 inch sizes which are planer finish. Write for latest data.

547

THE CHALLENGE MACHINERY COMPANY
"Over Fifty Years in the Service of the Graphic Arts"
GRAND HAVEN — MICHIGAN

The books listed below may be ordered through Printing Equipment Engineer, 1276 W. Third St., Cleveland 13, Ohio. Because of narrow handling margin, please send remittance with order.

TECHNICAL BOOKS

GENERAL

MATERIALS HANDLING—By Harry E. Stocker. This book is of vital interest to mechanical and production executives in printing and publishing plants. While not written specifically as a treatise on materials handling in the printing plant, yet a great deal of its text will be of value in the handling of materials in the plant and out-going shipments from the plant. Bound in light buckram, 309 pages, many illustrations, size 6 in. by 9¼ in. Price $5.00.

READING AS A VISUAL TASK—By Matthew Luckiesh, D.Sc. and Frank Moss, E.E. Most important research work to have been published in many years. For printers, designers, publishers, typographers and layout men. Readability of type, type faces, length of line, leading between lines, paper, ink, printing method and lighting are some of the factors involved in ease of reading. Size 5½ in. by 8⅝ in., 428 pages, bound in maroon gold stamped cloth. Price $5.

STANDARD BOOK ON ESTIMATING for PRINTERS—By Fred W. Hoch. Revised 1941 edition. This book is a primer for students and a reference for printers and estimators. Every printing plant should have a copy. Author explains all operations in commercial printing plant and shows production time allowance for each in hours and decimal hours. Size, 6 in. by 9¼ in., 268 pages, $3.75.

PRINTING INKS—Their Chemistry and Technology—**By Carleton Ellis.** Bound in cloth, 6 in. by 9½ in., 560 pages, well illustrated. For printing executives, pressmen, photo-engravers, plate-makers, ink manufacturers, chemists, paper-makers. Author stays close to printing plant. The solving of new production problems brought about by technological improvements, both in equipment and inks, created the urgent need for this book. Price $7.

GRAVURE

PHOTOGRAVURE—By H. Mills Cartwright. Covers all of photogravure's basic principles in concise and readable language. Rotogravure receives minor discussion but this is generally considered best textbook on photogravure process. Contains 202 pages, 34 illustrations, maroon cloth, size 6¼ in. by 9¼ in., $3.50 per copy.

STEREOTYPE

MANUAL OF STEREOTYPING—By Joseph Goggin. This 256-page book conveys technical information and manipulating procedure. Written by a practical stereotyper. Price $5.00.

OFFSET-LITH

LITHOGRAPHERS MANUAL—Compiled by Walter E. Soderstrom. Second revised edition. Technical information from copy to finished job. Nationally known technical men contributed the bulk of practical camera, platemaking and presswork information. Size 8½ in. by 11¼ in. Bound in red cloth, gold stamped. Many of the 368 pages are illustrated. Price $5 per copy.

THE SINGLE COLOR OFFSET PRESS—By I. H. Sayre. The purpose of this book is to offer a detailed technical explanation of the operation of the small single color offset printing press. It also carries recommendations for approved methods of printing technique and press care which apply to all offset printing. Much of the technical operating information applies to all makes of small offset presses.

Section I deals with Harris offset presses.
Section II deals exhaustively with materials used in offset printing.
Section III deals with ATF's Webendorfer single-color offset presses.

Illustrated with 99 figures in line and halftone; 284 pages; size, 6 in. by 9¼ in.; bound in blue cloth, cream stamped lettering. Price $6.

PHOTOGRAPHY AND PLATEMAKING FOR PHOTO-LITHOGRAPHY—By I. H. Sayre. This is an instruction book and an encyclopedia, both for the beginner and the experienced offset-lith platemaker. Revised edition. Illustrated. New section on color process platemaking techniques included. Price $6.00.

PRESSROOM

PRESSROOM PROBLEMS AND ANSWERS—By Fred W. Hoch. Might be considered a miniature encyclopedia since it contains answers to 334 pressroom problems which have been answered by Mr. Hoch. Written in language of journeyman pressman. Pressmen, production men, paper and ink manufacturers, electrotypers and photo-engravers will find this book of high utility when pressroom problems arise in which tendency is to lay blame on furnished materials used in pressroom production. Size, 6 in. by 9½ in., 258 pages, gold stamped blue cloth. Price, $2 per copy.

HOW TO ADJUST WORK-UPS—By Wm. H. Lichter and Geo. F. Smalley. Booklet consists of 24 pages in which are analyzed and remedies are given for prevention and/or elimination of work-ups. Material written as result of actual plant experience. Size, 5¼ in. by 7¼ in. Price, $1 per copy.

HANDBOOK FOR PRESSMEN—By Fred W. Hoch. Book written by authority on all phases of flat-bed letterpress production for the practical pressman. Contains 248 pages, 26 illustrations and 24 charts, $3 per copy.

THE PRACTICE OF PRESSWORK—By Craig R. Spicher. We offer copies to our readers, at the special price of $4.00 per copy. No printer should be without a copy (9000 copies printed).

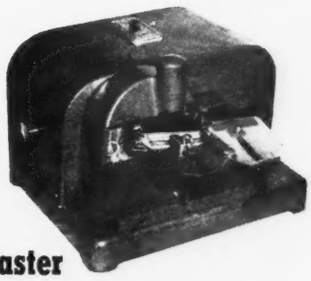
Send order with remittance to PRINTING EQUIPMENT ENGINEER, 1276 West Third St., Cleveland 13, Ohio

A.P.S. STEREOTYPE
GUMMED PACKING
CORK BLANKETS
CREEPERS
POURING SHEETS
ROUTER BITS
TAILBOARDS

ALWAYS BEST AT

AMERICAN PUBLISHERS SUPPLY
P. O. Box 924 Lynn, Mass.

FW-45 Spaceband Cleaner — Modern Composing Room Necessity Offers You



Better Spaceband Cleaning-up to 80% faster

Cleaner provides—Control of metal adhesions at casting point—Longer matrix life, by eliminating side wall damage due to metal adhesions—Longer, trouble-free matrix life —Proper lubrication, depositing controlled amount of graphite on each spaceband. Get particulars from

FULLER MACHINE CO., 17 Haigh Ave., Schenectady 4, N.Y.

Classified

WANTED

Rotogravure Printing Presses—Web or Sheet Fed—Copper Cylinders, Cellophane Slitters—Sheeters. ALLEN MACEY COMPANY, 80 Boylston Street, Boston, 16, Mass.

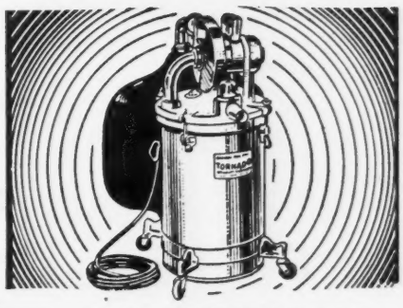
DESIGN MECHANICAL ENGINEER

Leading Mid-West printer requires young graduate mechanical engineer experienced in printing and/or binding equipment. Salary and future opportunities excellent. Give experience, education, details in reply. Reply c/o Box No. 250, *Printing Equipment Engineer.*

FINISHER—PROOFER

We are looking for a young man who is dissatisfied with his present job and who would like to make a permanent connection in the healthful Southwest. A progressive metropolitan daily, publishing 13 issues a week offers a real opportunity to the right man to grow with it. Ambition and desire to learn is more essential than years of experience. A union shop doing high class color and black and white work. Applications considered also for other branches. State housing requirements in application. Address Box 258 c/o *Printing Equipment Engineer.*

CLEAN FLOORS EQUIPMENT with ***TORNADO***



KEEP your plant clean — protect machinery — reduce power costs— salvagescrap — with the TORNADO Portable Industrial Vacuum Cleaner. Powerful. Portable. Picks up dust, dirt, chips, etc. Light weight. Large capacity.
Write for details and Free Trial Offer!

TORNADO PORTABLE ELECTRIC BLOWER

BREUER ELECTRIC MFG. CO.
5114 N. Ravenswood Ave., Chicago, 40

ENGINEERING FOR THE PRINTER & PUBLISHER

New Buildings . . . Modernization
Alterations . . . Surveys

ROBERT W. DICKERSON
508 ERIE BLDG., CLEVELAND 15, OHIO

Division of Maier & Walsh and Dickerson
ARCHITECT-ENGINEERS

TINGUE
TRADE MARK
PRINTING PRESS BLANKETS AND DRAWSHEETS

TINGUE, BROWN & CO.
114-120 EAST 23rd ST., NEW YORK 10, N.Y. 723 E. WASHINGTON BLVD., LOS ANGELES 21, CAL.
1227 WABASH AVE., CHICAGO 5, ILLINOIS 507 PETERS STREET, S.W., ATLANTA, GA.
CANADIAN SALES AGENTS ROSS WHITEHEAD & CO. LTD. MONTREAL, CANADA

BAUM FOLDERS
RUSSELL ERNEST BAUM
615 Chestnut Street Philadelphia, Pennsylvania

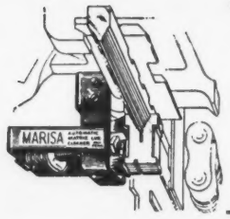
For Linotype and Intertype
REID MAGAZINE RACKS
ALSO FULL STOCK MOTOR PINIONS
VACUUM PUMPS
Order from WILLIAM REID CO., 2271 Clybourn, Chicago 14, Ill.

SAFETY·RELIABILITY·ECONOMY

CLINE
PRESS DRIVES
and
CONTROL
Reels, Tensions
and Pasters...

CLINE SYSTEM

CLINE ELEC. MFG. CO.
Chicago, 211 West Wacker Drive
New York, 220 East 42nd Street
San Francisco 1st Nat'l Bank Bldg



CLEAN MATRIX LUGS
AUTOMATICALLY
without removing from machine. Safe; uses fine wire brush. Easy to install. Model U for Intertypes and non-mixer Linotypes. Model LM for mixer Linotypes. $12.50 each, postpaid. 10% discount on 5 or more.
MARISA ENGINEERING PRODUCTS
193 Milford Avenue, Newark 8, N. J.

Production and mechanical executives should refer to the Condensed Printing Equipment Catalog Section of the Annual Printing Equipment and Supplies Reference issue. This section will give you specifications about many kinds of printing equipment.

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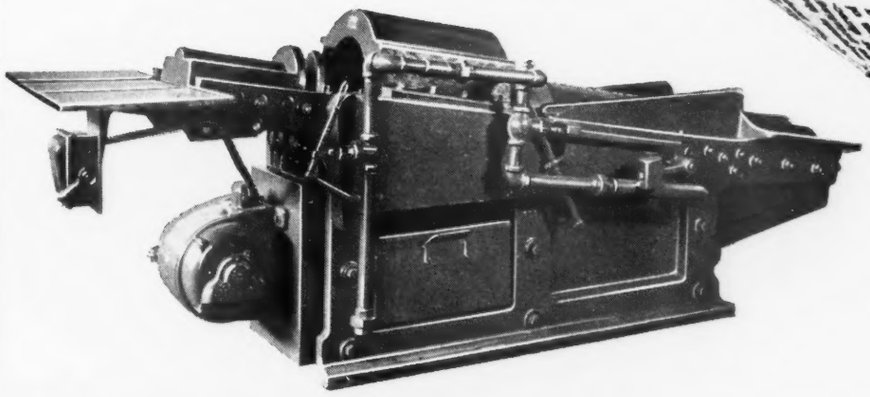

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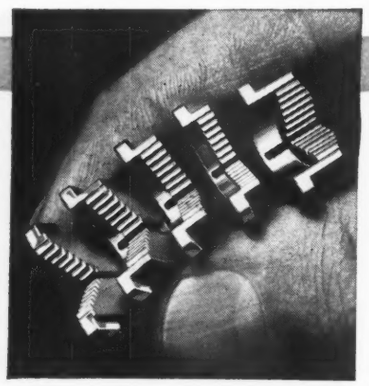

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